AN INVENTORY OF OBSTACLES, CHALLENGES, WEAKNESSES OF THE INNOVATION SYSTEM AND OF THE OBJECTIVES AND TRENDS OF R&D AND INNOVATION POLICIES IN SELECTED EUROPEAN COUNTRIES

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RESUMEN

Este documento de trabajo ofrece un inventario de los obstáculos, desafíos, debilidades del sistema de innovación, las tendencias recientes y la cultura de evaluación en relación con las políticas de I + D e innovación en 13 países europeos seleccionados. En las secciones 2 y 4 se analizan las necesidades generales u obstáculos de los sistemas nacionales de innovación (sección 2), así como los objetivos principales y las tendencias de I + D y las políticas de la innovación (sección 4). Además, el artículo 5 ofrece una breve evaluación de la cultura de la evaluación en relación con la tecnología y políticas de innovación.

PALABRAS CLAVE

Sistema de innovación, I+D, Politicas de Innovación, tecnología, tendencias.

SUMMARY

This working document offers an inventory of the obstacles, challenges, weaknesses of the innovation system, the recent trends and the evaluation culture in relation with the R&D and innovation policies in 13 selected European countries. Section 2 and 4 analyses the general needs or obstacles of the national innovation systems (section 2) as well as the main objectives and trends of the R&D and innovation policies (section 4). Moreover section 5 offers a short assessment of the evaluation culture in relation to the technology and innovation policies.

KEY WORDS

Innovation syastem, R&D, innovation policies, technology, trend.

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1. Introduction and methodological remarks

This working document offers an inventory of the obstacles, challenges, weaknesses of the innovation system, the recent trends and the evaluation culture in relation with the R&D and innovation policies in selected European countries. This document has been prepared as part of the European Commission funded OMC-Net project "Optimising the Policy Mix by the Development of a Common Methodology for the Assessment of (Socio-) Economic Impacts of RTDI Public Funding" (CIA4OPM). In this paper an inventory on the policy mix and the instruments related with the Science –Industry Relationships will be presented. Therefore a compilation of the national policy mix and every country's interests and needs regarding the cooperation and transfer of technologies between Academia and Industry will be offered. This specific aspect will be contextualised within the general framework of R&D policies for 13 European countries: the 11 project partner countries of the CIA4OPM project and Germany and the U.K. (See **Table** 1). The inclusion of the last two countries is justified due to their long standing experience in evaluation studies. Germany can be considered as one of the countries with the best designed innovation system in relation with the science-industry relationship and, moreover, is one of the pioneers in the evaluation of R&D and innovation policies. Although for some aspects the data of 25 or 27 EU countries will be analysed.

Section 2 and 4 analyses -for the countries of **Table** 1- the general needs or obstacles of the national innovation systems (section 2) as well as the main objectives and trends of the R&D and innovation policies (section 4). Moreover section 5 offers a short assessment of the evaluation culture in relation to the technology and innovation policies. In this report a broad holistic system approach will be used, on one side, to put the Science and Industry Relationships (SIRE) in a broader context and, on the other side, to offer information that can be useful for other work packages.

Table 1: The analysed countries: Participants of the CIA4OPM project and two other ones

Country	Participants of the Project
AUSTRIA	Yes
BELGIUM	Yes
BULGARIA	Yes
CZECH REPUBLIC	Yes
ESTONIA	Yes
FRANCE	Yes
GERMANY	No
ICELAND	Yes
MALTA	Yes
SPAIN	Yes
SWEDEN	Yes
TURKEY	Yes
UNITED KINGDOM	No

The data to develop the SWOT analysis in section 2 is based on specific qualitative data obtained from different sources. On the one hand, data of the participants of this project were collected and, on the other hand, several publications of the ERAWATCH organisation have been used. This non

profit organisation published in the last years several -more or less standardised- qualitative annual country reports and profiles on the research systems of all 27 EU countries and also created some country profiles for another twenty non-EU countries. Although there are more sources of information, basically the information from ERAWATCH will be used. The innovation is getting more and more attention from the policy makers of all developed countries and it is subject of continuous rapid changes. This dynamism implies that up to date information should be used to track the last developments. In this dynamic context the ERAWATCH data are very useful. Most other reports are published on an irregular rhythm and the time between the preparation and final publication is often very large especially in the case of the reports that are only published on paper version. The ERAWATCH reports are updated annually and published almost directly due to the fact that they are published on internet. Moreover the website of ERAWATCH is updated at least twice a year which means that our data include the last changes or trends. Another advantage of the ERAWATCH reports is its more or less standardised structure which means that they analyse the same aspects. However in this case it can be highlighted that the standardisation of the reports could be improved.

Table 2: Sources of information for the SWOT analysis

▪ WP4 template from CIA4OPM partners (see Other Annexes) ▪ Different reports of the ERAWATCH organization ▪ Country profiles published in the ERAWATCH website (Downloaded in February 2010) ▪ Annual country reports 2008 ▪ Policy mix reports 2009 ▪ The 814 templates included in the ***European Inventory of Research and Innovation Policy Measures (2008-2009)***
ERAWATCH is the European Commission's information platform on European, national and regional research systems and policies. Its main objectives are to support policy-making in the research field in Europe and to contribute to the realisation of the European Research Area (ERA). The service currently covers 49 countries: 27 EU Member States, countries associated with the European Community's Research Framework Programme and, for comparative purposes, main trading partners of the EU. ERAWATCH is targeted at all those involved in research policy-making in Europe. It is a long term initiative jointly carried out by the European Commission's Directorate-General for Research and the Joint Research Centre - Institute for Prospective Technological Studies (JRC-IPTS) based in Seville (Spain). The ERAWATCH online service has been developed in collaboration with CORDIS. The ERAWATCH web site includes National profiles (including national and regional information); European perspective (comprising European level information) and specific country reports, section, devoted to analysis on research policy issues, country overviews and trends.

A first step of the inventory presented in this report is the review of the existing country reports and profiles to track the challenges, obstacles (§ 2) , policy trends (§ 4) and evaluation culture (§ 5). Therefore the first step is making a list of the detected obstacles and trends. Once having a list of these aspects they are codified. In other words we developed a classification or codification to standardise the very qualitative descriptions and assign to each aspect a unique code. Once such classification has been made, the qualitative information will be summarised by means of different matrixes that will be useful to compare the diversity of policy needs and trends of the 13 mentioned countries.

For the correct interpretation of the results presented in this report it has to be taken into account that the ERA-watch country reports offer more or less standardised information however they are

prepared by different country correspondents with different backgrounds and interests. This could imply that certain aspects are not mentioned in all country report. Concluding, the fact that for some specific country a certain aspect, obstacle or trend is not mentioned can not be interpreted as it does not exist. Therefore the correct interpretation of the results presented here should be that it highlights the global situation and main trends.

In section 3 of the report a global analysis of the R&D and innovation policies of 27 EU countries will be offered. The used information is based on the data of the ***European Inventory of Research and Innovation Policy Measures*** (2008-2009) created –on behalf of the European Commission- by the ERAWATCH organisation. The ERAWATCH inventory created a database with 814 specific standardised templates of policy instruments covering the most relevant instruments of the R&D and innovation policies at national level. These templates include information of their objectives, background, policy priorities, financial efforts, etc… which is very useful for the inventory carried out in this report. In this section a general overview will be offered about which type of instruments are used, which policies are more frequently applied (based on the number of instruments and budget assignment) and in which countries (Section 3.1). After this global introduction specific attention will be given to the instruments that are directly related to the improvement of the public private interaction (PUPIN – section 3.2).

In section 4 the evaluation culture in the different countries will be analysed. The main source of information will the already mentioned ***European Inventory of Research and Innovation Policy Measure.*** This database –facilitated by the ERAWATCH organisation- includes a questions about the existence of ex post evaluation studies. The existence of such a study implies an impact assessment and permits to identify –theoretically- if the instrument achieved the foreseen goals and which aspects were problematic. In this section the percentage of instrument that are evaluated will be compared simultaneously on country level and by type of instrument for all 27 EU countries.

2. Needs and obstacles of the innovation system and R&D and innovation policies

The thoroughly review[1] of the country reports and the ERAWATCH website information for 13 countries generated 409 weaknesses or challenges (see **Table 3**) of the national innovation system and the R&D policies, although some of them were mentioned several times[2]. These challenges were grouped -in a first step- in 66 classes of obstacles. In **Table 3** it can be observed that the east European regions together with Belgium are mentioning a higher number of different obstacles.

Table 3: Number of challenges or obstacles (of the national innovation system and the R&D policies)

Code	Total number of obstacles mentioned before the classification	Number of different obstacles classified in 66 different classes	
Austria	21	13	19,70%
Belgium	46	23	34,80%
Bulgaria	63	31	47,00%
Czech R.	48	23	34,80%
Estonia	41	31	47,00%
France	24	17	25,80%
Germany	17	12	18,20%
Iceland	35	20	30,30%
Malta	23	20	30,30%
Spain	16	13	19,70%
Sweden	29	18	27,30%
Turkey	23	16	24,20%
U.K.	23	14	21,20%
Total general	409	251	100,00%

Source: own elaboration based on the ERAWATCH country reports and profiles

Initially 409 apparently different obstacles were detected in the 13 country reports. However in the classification process -based initially in 66 classes reflected in this table - this number was reduced to 251 obstacles. In a second step the obstacles were reclassified in 47 aspects or characteristics which were divided in two groups: the ones related with the basic characteristics of the national innovation system classified in 29 classes and, on the other hand, the weaknesses of the national R&D policies, aggregated in another 18 classes. Although some of the obstacles do refer simultaneously to the national innovation system and the policy framework, like the lack of priority setting or the different shortcomings of the public research system which at the end is the outcome of policy decisions in the past.

In relation with the obstacles or weaknesses of the national innovation systems (see **Table 4**) the countries that mention the highest number of obstacles or challenges are the East European countries (Bulgaria, Estonia and the Czech Republic). Each of these countries mentions 62% of the 29 codified obstacles. (See **Table 4**). Two other countries that mention a high number of obstacles (almost the half of them) are Iceland and Belgium. In the group of 8 countries with a low average

[1] The methodology used in this section is explained in the introduction

[2] Here can be taken into account that during the review of the reports several of these "duplications" of the mentioned weaknesses were already excluded from the analysis.

number of obstacles Turkey, Malta and Spain can be highlighted because these are countries whose innovation system could be considered as less developed.

In the case of the inappropriateness of the policy framework the country profiles and reports of Estonia and Turkey mention the highest number of challenges or obstacles while the Spanish reports do mention only 2 aspects. Looking to the total number of challenges and obstacles the three east European countries confirm the relative weak configuration of their innovation systems and policies. While Spain, Malta[3], Austria and Germany are less critical about their R&D policies and innovation systems.

Table 4: Number of different challenges or obstacles of the national innovation system mentioned by each country (Maximum 29)

Country	Number of obstacles			Percentage in relation with the maximum number of obstacles		
	National innovation system	Policy design	Total	National innovation system	Policy design	Total
Austria	9	4	13	31,0%	22,2%	27,7%
Belgium	14	5	19	48,3%	27,8%	40,4%
Bulgaria	18	5	23	62,1%	27,8%	48,9%
Czech R.	18	4	22	62,1%	22,2%	46,8%
Estonia	18	7	25	62,1%	38,9%	53,2%
France	11	5	16	37,9%	27,8%	34,0%
Germany	8	5	13	27,6%	27,8%	27,7%
Iceland	14	5	19	48,3%	27,8%	40,4%
Malta	8	5	13	27,6%	27,8%	27,7%
Spain	10	2	12	34,5%	11,1%	25,5%
Sweden	11	4	15	37,9%	22,2%	31,9%
Turkey	9	6	15	31,0%	33,3%	31,9%
U.K.	8	4	12	27,6%	22,2%	25,5%
General average	12	4,7	16,7	41,4%	26,1%	35,5%
Total number of obstacles	29	18	47	100%	100%	100%

Source: own elaboration based on the ERAWATCH country reports and profiles

Table shows the distribution of the obstacles by sub classes[4]. In this table we can observe that, in most of the sub classes, the east European countries are more critical about their innovation systems. However in some cases also some economically very advanced countries show a relatively broad number of specific problems. For example, it is the case of contextual problems where Sweden is one of the countries that mention more aspects than any other country or the case of public research system where Austria mentions different obstacles. Only two countries (Malta and Germany) do not criticise their public private linkages (e.g. lack of such linkages, deficient technology transfer between public and private institutes, low level of commercialisation of the public research results). The country reports of Sweden and the UK mention the lack of usefulness (or the low level of commercialisation) of the research results as a problem, however the existence

[3] MALTA: There is no legal framework concerning the RTD policies for Industry-Academia cooperation. RTD policy in Malta is administered through a 'soft' policy approach, without the use of legal acts, notices or such tools.
[4] Not all type of obstacles are included in this table

of linkages and the technology transfer between science and industry is not considered as problematic. In relation to the contextual framework, three countries (Austria, Belgium and France) do not mention any obstacle while Sweden does not consider the situation of the human resources as a problematic topic.

BELGIUM: The weakest links in its innovation system appear to be related to public research inputs and its capacity to translate resource endowments into technological performance (High Level Group 3% - 2005). This can be related to the fact that the national innovation system of Belgium is characterized by 'atomization'. Weaknesses of knowledge flows between the public science sector and businesses, moderate degrees of co-operation amongst businesses, insufficient integration of foreign subsidiaries into the domestic innovation system (with the danger of repatriation of R&D benefits out of the country), spatial concentrations with limited diffusion effects, fragmentation of STI policy settings, are main points of attention.

Table 5: Number of challenges or obstacles by sub classes

	Level of R&D intensity and capacity (5)	Public Research System (3)	Public Private linkages (4)	Human resources (5)	Contextual problems (7)	Policy framework
Austria	1	3	3	1	0	4
Belgium	3	2	3	3	0	5
Bulgaria	5	3	3	5	1	5
Czech R.	3	2	4	5	2	4
Estonia	4	2	3	3	4	7
France	2	2	3	2	0	5
Germany	3	1	0	1	1	5
Iceland	3	2	3	1	3	5
Malta	1	2	0	2	3	5
Spain	2	1	2	2	2	2
Sweden	3	1	1	0	4	4
Turkey	1	1	2	2	3	6
U.K.	2	1	1	2	1	4
Total general	33	23	28	29	24	61

Source: own elaboration based on the ERAWATCH country reports and profiles

Table 6 offers broad information on country level about the different obstacles or challenges of the national innovation systems mentioned in the country reports and the ERAWATCH website. Analysing the specific 29 types of obstacles, it can be observed that 4 of them are mentioned by most of the countries that are analysed. Ten or eleven countries mention the "lack or low level of R&D investments (code 100)"; "the low level of excellence or lack of quality of the public research (code 250)" and "the lack of commercialisation or usefulness of the results of the public research results (code 480)". Moreover 11 countries highlighted "the scarcity of human resources or well qualified researchers (code 500)".

Another 5 aspects are also mentioned in the majority of the country reports of ERAWATCH:

- The lack of linkages between public and private organisations (8 countries)

- The possible brain drain of researchers to foreign countries (8 countries)
- The Lack of priority setting by the distribution of the R&D funds (8 countries)
- The lack of a critical mass for R&D activities and the fragmentation of research organisations (8 countries)
- The dependence of the R&D investment on a small number of (foreign) firms (7 countries)

Table 7 shows the country data regarding the existence of an inappropriate policy making system. The most mentioned policy problem is "the lack of policy coordination" (mentioned by 10 of the 13 countries). This aspect refers, on one hand, to the lack of coordination between regional or national level and, on the other hand, to the lacking synchronization of the activities and policies of policymakers at national level. Other aspects mentioned several times are "the lack of evaluation studies of the impact of the policies" or "the configuration and functioning of the national innovation system (including the absence of foresight studies)".

Table 6: A taxonomy of the distribution of the challenges or obstacles of the national innovation system by countries

(The numbers indicate that this challenge or need is at least mentioned one time in one of analysed reports of each country)

code		Austria	Belgium	Bulgaria	Czech.	Estonia	France	Germany	Iceland	Malta	Spain	Sweden	Turkey	U.K.	Total
100	Lack of R&D investments			1	1	1	1	1	1	1	1	1	1	1	11
110	Dependence of the R&D investment on a small group of (foreign) firms	1	1		1	1	1					1		1	7
112	Reallocation of R&D by foreign or national firms		1					1	1			1			4
120	Low public investment or low finance for universities		1	1				1							3
140	Low absorptive capacity or lack of capabilities in firms	1	1			1								1	4
160	Lack of critical mass (fragmentation)	1	1	1	1	1			1		1	1			8
170	Lack of priority setting o		1	1	1	1	1	1	1		1				8
200	Public Research Organisations and Higher Education Institutes (PR)														
210	PR Lack of competitive funding versus too much block funding	1	1	1	1	1				1					6
250	PR: Lack of excellence or lack of quality	1	1	1	1	1	1	1	1			1	1	1	11
270	PR Lack of autonomy (e.g. inflexibility in resource assignment - annual budgets)	1		1			1		1	1	1				6
	SIRE Public private linkages														
430	SIRE Lack of linkages between public research institutes	1		1	1										3
450	SIRE Lack of linkages between PRO/HEI and the private sector		1	1	1	1	1		1		1		1		8
460	SIRE Lack of technology transfer	1	1		1	1	1		1						6
480	PR Lack of usefulness of results or the low level of commercialisation	1	1	1	1	1	1		1		1	1		1	10

Source: own elaboration based on the ERAWATCH country reports and profiles

code		Austria	Belgium	Bulgaria	Czech.	Estonia	France	Germany	Iceland	Malta	Spain	Sweden	Turkey	U.K.	Total
500	Human Resources (HR)														
500	HR.: Scarcity of human resources or well qualified HH.RR.	1	1	1	1	1		1	1	1	1		1	1	11
510	HR.: Low attractiveness of research career (Low salaries; Insecurity etc.)		1	1	1	1	1								5
520	HR.: Possible braindrain		1	1	1	1				1	1		1	1	8
530	HR.: Problem of ageing of the researchers			1	1		1								3
560	HR.: Lack of training and low quality of new researchers			1	1										2
600	Internationalisation / Globalisation			1	1	1				1	1	1			6
700	Problems in the broader contextual setting of the innovation system														
730	Property right problems					1				1		1	1		4
740	High presence of SMEs								1	1	1	1			4
760	Small country size					1			1						2
770	Dominance of low tech firms or sectors					1							1		2
790	Lack of innovative culture			1	1	1	1	1	1			1			6
900	Lack of venture capital or New Technology based Firms (NTBF)				1			1	1			1	1	1	6
	Total number of obstacles	9	14	18	18	18	11	8	14	8	10	11	9	8	12,0
	% of the obstacles divided by the maximum number (29)	31,0%	48,3%	62,1%	62,1%	62,1%	37,9%	27,6%	48,3%	27,6%	34,5%	37,9%	31,0%	27,6%	41,4%

Source: own elaboration based on the ERAWATCH country reports and profiles

Table 7: Taxonomy of the distribution of the challenges or obstacles related with the R&D and innovation policies by countries

(The numbers indicate that this challenge or need is at least mentioned one time in one of analysed reports of each country)

	Aggregated code	Austria	Belgium	Bulgaria	Czech R.	Estonia	France	Germany	Iceland	Malta	Spain	Sweden	Turkey	U.K.	
1010	Insufficient or inadequate regional or sectorial policies					1	1		1				1		4
1100	Lack of support to promote (private) R&D investment					1	1	1						1	4
1112	Lack of support to attract foreign R&D					1									1
1160	Lack of long term strategy		1	1		1					1				4
1180	Inappropriate infrastructure policies													1	1
1190	Lack of incentives for cooperation								1						1
1400	Lack of appropriate support for the commercialisation of R&D results	1			1									1	3
1460	Lack of policy incentives for P-P collaboration							1		1			1		3
1700	IPR Property right problems					1				1		1			3
1800	Inappropriate governance of the system	1					1	1					1		4
1900	Policy management								1						1
1910	Lack of evaluation of the NIS	1		1	1			1			1	1			6
1911	Lack of policy evaluation			1	1				1	1					4
1912	Lack of foresight studies		1			1		1					1		4
1920	Lack of coordination	1	1	1	1	1	1		1	1		1	1		10
2000	Inappropriate adaptation on EU policies or Structural funds		1							1					2
2001	Other aspects		1	1			1					1	1	1	6
		4	5	5	4	7	5	5	5	5	2	4	6	4	61

Source: own elaboration based on the ERAWATCH country reports and profiles

Looking to the differences by countries, we can observe a very diverse distribution and the fact that almost none of the aspects are exclusive for any specific groups of countries. We can consider three classifications of the countries: a first one based on differences in wealth, a second one based on the absolute size, and a third one based on the innovative capability (see **Table 8**).

Table 8 Classification of the countries

Economic development (wealth)

- The most developed ones (Austria, Sweden, Germany, Belgium, France, the UK and Spain - GDPpc above €20.000)
- The intermediate countries (Estonia and Malta – GDPpc between 10 and €20.000)
- The lowest developed countries (Bulgaria and Turkey - GDPpc below €10.000

Absolute size (population)

- Very small countries (Malta and Iceland)
- Small countries (Austria, Belgium, Bulgaria, Czech Republic, Estonia and Sweden)
- Large countries (the rest)

The innovative intensity (GERD by capita)

- High (Austria, Sweden, Germany, Belgium, France, Iceland and the UK - GERD/GDP above 1,75%)
- Medium (Spain, Czech Republic, Estonia - GERD/GDP between 1% and 1,5%)
- Low (Turkey, Malta and Bulgaria - GERD/GDP below 1%)

In relation to the wealth of the countries, it seems that those ones with less per capita income show in general more obstacles and weaknesses, except in the case of Turkey. The problem of public research system (Universities and public research institutes) and the public private relationships and interaction are mentioned by all type of countries independently of their size, wealth or innovative capability. In other words, no clear tendency for specific type of countries was detected.

The obstacles related with the human resources, like the scarcity of researchers, are a generally recognised problem by all type of countries. The low level of attractiveness of the research career is mentioned by 5 countries of different level of wealth. The less developed countries together with Spain are more anxious about the problems of the possible negative effects of the brain drain and some of those countries mention the low quality of the education of their researchers.

The contextual framework conditions seems to be more problematic in the less developed countries that mention in general between 2 and 4 aspects, while the more developed countries do mention only 1 or 2 aspects. However an exception is the case of Sweden that also mentions 4 aspects of the contextual framework conditions. The lack of innovative culture and the lack of venture or risk capital are mentioned by six countries each. A surprising fact is that also Germany and Sweden –two of the countries with the highest level of R&D expenditures by GDP do consider the lack of innovative culture as an obstacle.

The comparison of Iceland and Malta –both very small countries with less than a half million of inhabitants- shows that both countries mention very different aspects although they agree on three aspects: the scarcity of human resources, the high presence of SMEs and the low attractiveness of the research career.

It has to be stated that the fact that several items are not mentioned in the country reports does not mean that they are not a problem. Although the reports are somehow standardised the inclusion of some specific aspects depends on the interest of the country expert that elaborated the report. However the review gives a good general overview about the existence of specific obstacles or challenges and offered some interesting conclusions.

Table 9: Main features on R&D, size and GDP

			Distribution of the funds (%)			Population	GDP per capita	
	Year	R&D intensity (GERD/GDP)l	Business Enterprise sector	Public sector (Government and higher education)	Foreign	2008	2007	2008
European Union (27)	2005*	1,83	54,5	34,2	9	497645455 (p)	24900	25100
European Union (25)	2005*	1,91	54,8	33,8	9	468476590 (p)	26100	26300
Euro area (15)	2005*	1,86	56,6	35,1	6,9	321.720.930	27900	28500
Belgium	2005*	1,87	59,7	24,7	12,4	10.666.866	31500	32200
Bulgaria	2006	0,48	30,6	61,9	6,5	7.640.238	3800	4500
Czech Rep.	2007	1,54	54	41,2	4,1	10.381.130	12300	14200
Denmark	2005*	2,55	59,5	27,6	10,1	5.475.791	41600	42400
Germany	2006	2,53	68,1	27,8	3,8	82.217.837	29500	30400
Estonia	2007	1,14	41,6	45,6	11,7	1.340.935	11600	12000
Ireland	2006	1,31	59,3	30,1	8,9	4.401.335	43600	40900
Greece	2005*	0,57	31,1	46,8	19	11.213.785	20200 (p)	21300 (p)
Spain	2006	1,27	47,1	42,5	5,9	45.283.259	23500	23900
France	2006	2,08	52,4	38,4	7	63.982.881	29700	30400
Italy	2006	1,14	40,4	48,3	8,3	59.619.290	26000	26200
Cyprus	2006	0,45	15,9	66,5	12,1	789.269	20300	21700
Latvia	2007	0,63	36,4	55,2	7,5	2.270.894	9300	10200
Lithuania	2007	0,82	24,5	47,9	19,6	3.366.357	8500	9600
Luxembourg (Grand...	2005*	1,63	79,7	16,6	3,6	483.799	78100	80500
Hungary	2007	0,97	43,9	44,4	11,1	10.045.401	10100	10500
Malta	2007	0,6	45,4	3,3	28,4	410.290	13300	13800
Netherlands	2007	1,7	..	..	..	16.405.399	34700	36200
Austria	2007	2,56	47,7	35,6	16,3	8.318.592	32600	33800
Poland	2006	0,56	33,1	57,5	7	38.115.641	8200	9500
Portugal	2005*	1,18	36,3	55,2	4,7	10.617.575	15400	15700
Romania	2007	0,53	26,9	67,1	4,5	21.528.627	5800	:
Slovenia	2007	1,53	60,3	33,8	5,4	2.010.269	17100	18400 (b)
Slovakia	2007	0,46	35,6	53,9	10,2	5.400.998	10200	12000
Finland	2007	3,47	68,2	24,1	6,5	5.300.484	33900	34700
Sweden	2005*	3,64	65,7	23,2	7,7	9.182.927	36200	35400
United Kingdom	2006	1,76	45,2	31,9	17	61.175.586 (p)	33500	29600
Croatia	2007	0,86	35,5	50,4	10,9	4.436.401	9700	10800
Turkey	2007	0,58	46	48,6	0,5	70.586.256	6700	7000
Iceland	2005	2,77	48	40,5	11,2	315.459	47700	32100
Norway	2007	1,65	44,3	45,9	8,2	4.737.171	60200	64900

Source: own elaboration based on EUROSTAT data

3. Policy instruments in Europe: A global analysis

In this part of the report a global analysis of the R&D and innovation policies of 27 EU countries will be offered. The used information is based on the database of the ***European Inventory of Research and Innovation Policy Measures*** created –on behalf of the European Commission- by the ERAWATCH organisation[5]. The database offers detailed information about 814 instruments that where operative in period 2008-2009 in one of the 27 EU countries (see **Table 10**). The instruments were classified in 39 main priorities.

In this section some country specific information on the number of instruments will be given. In the case of the budgets, only the global data will be used. Although the data base offers country specific data for the budgets these data were subject of an internal revision and control made by specialists of the ERAWATCH network. These revised data are only available on global level. Therefore the budgets on country level can be considered as not totally reliable.

First a general overview will be offered about which type of instruments are used, which policies are more frequently applied (based on the number of instruments and budget assignment) and in which countries (Section 3.1). After this global introduction specific attention will be given to the instruments that are directly related to the improvement of the public private interaction (PUPIN – section 3.2).

3.1.- Type of implemented instruments and general overview

Looking to the number and the type of policy instruments implemented by those 27 countries four policy fields can be highlighted. The fields with the highest number of instruments are those focussed on the cooperation in R&D (especially public private cooperation) (101 instruments - 12.4%) followed by the long term strategic research policies (67 instruments – 8.2%); the instruments to promote business start ups (65 – 8%); and the policies to promote the research excellence (58 – 7.1%). While the four most important policy priorities in budgetary terms (see the same table) are the support of public research organisations; the direct support for business R&D; the support for risk capital and the support for R&D cooperation. Each of these policy fields has between 9 till 10% of the total budget.

The instruments dealing with the private public linkages or, - or in other words, with the analysis foreseen in Work Package 4 - consist of the three instruments of "section" 2.2 in Table 10 (marked with a yellow "shadow"). Like already mentioned, the policies focussed on public private cooperation (code 2.2.3) consist of the highest number of instruments (101 -12,4%) and absorb 9,2% of the total funds for R&D and innovation policies. Moreover the 29 policy instruments focussed on technology transfer (code 2.2.2) absorb 1.5% of the funds (3,6% of the instruments). While the support infrastructure for technology transfer (code 2.2.1) includes only 12 instruments with a low budget (0,1%). Altogether the whole set of instruments to improve the **public private linkages** absorbs 10.8% of the funds and includes 17,5% of the instruments.

In relation to the measurements focussed on the stimulation of private R&D investment (WP3 – marked with a salmon colour in the table), 163 instruments were identified (only taking into

[5] The authors like to thank the ERAWATCH organisation and the European Commission for their support to provide us the data base with a detailed description of the 834 instruments. Detailed information of these instruments can be obtained in the European Inventory of Research and Innovation Policy Measures available on the ERAWATCH website http://cordis.europa.eu/erawatch/index.cfm

account those ones whose main priority is related to this type of instruments), which is 20,1% of all the instruments and 21% of the total budget. 63 instrument offer direct and indirect support for business R&D and absorbs 16% of the total budget that the 27 EU countries devoted to the R&D and innovation policies. Almost 7,8% of the instruments are focussed on promotion of the business R&D of which 6,3% implies direct support of business R&D by grants and loans and 1,5% of the instruments is indirect support to business R&D (tax incentives and guarantees). The other business R&D related instruments are focussed to risk capital (35 instruments with 9,4% of the budget) and business start ups (65 instruments with 5,5% of the budget) absorbs together almost 15% of the budget and include almost 12,3% of all instruments. In the case of the direct support, four countries show a high number of instruments (Greece, Austria, Luxembourg and Belgium). The other 12,3% of the instruments are focussed on the creation of new technology based firms (8%) and the availability of risk capital (4,3%). In this case Luxembourg, Portugal, the Czech Republic and France show a higher average number of instruments.

Taken into account the groups of related instruments by policy priorities it can be observed that the policy measures belonging to "priority" 2.1 (106 instruments related with public research institutions and universities (including the support for R&D infrastructure) absorb over 19% of the total budget and implies 13% of the 814 instruments. These instruments can be considered as part of the work package 5 (green shadowed). The priority of 79 instruments (9,7%) are focussed directly on the improvement of the management of research institutions and universities. Finland, Estonia, Sweden, Romania and the Netherlands show here a relatively high number of instruments. Another 142 instruments (17,4%) are aimed to the improvement of cooperation between the public research institutes and universities versus the private enterprises (WP4). Most of them (101) are aimed on the improvement of the public private cooperation. The number of instruments focussed on this objective is clearly above the average of 12,4% in the case of Belgium, Denmark, Germany and Ireland with respectively a percentage of 25, 31,4, 28,1 and 23,3%. Austria and Italy as well have an above average number (16%). This means that in general this instrument is more often used in the case of the most advanced countries. Also the promotion of the technology transfer seems to be more used in the most advanced countries especially in Belgium, France, the Netherlands, Spain and the United Kingdom. Although Bulgaria and Romania foster frequently this kind of technology flows too.

Moreover, 4 out of 39 policies priorities are focussed on the creation or improvement of the human resources or human capital. This policy field includes 98 instruments: 24 focussed on the stimulation of PhDs; 22 on the recruitment of researchers and another 22 are mobility schemes. Although this policy field includes 12,3% of all instruments their role in budgetary terms is much more limited absorbing only 3,8% of the total funds for R&D and innovation policies.

To interpret well the above description it has to be taken into account that the above mentioned percentages are based on the main priority mentioned by the ERAWATCH country experts. Some instruments have multiple objectives and therefore the data presented in this section offers just a first rough estimation of the importance of certain type of instruments and the global policy mix of the countries.

3.2.- Instruments directly related to the public private interaction (PUPIN).

In this part of the section specific attention will be given to the instruments that are directly related to the improvement of the public private interaction (PUPIN). In the following pages a broad overview will be offered about which instruments are implemented and how they are

used. Like mentioned before the 814 instruments were classified in 39 main priorities and three of them are directly related with science industry relationships

2.2.1 Support infrastructure (transfer offices, training of support staff);

2.2.2 Knowledge Transfer (contract research, licences, research and IPR issues in public/academic/non-profit institutes); and

2.2.3 R&D cooperation (joint projects, PPP with research institutes).

However in this section not only the main categories are used but also the secondary ones. To interpret the data and results of this section it has to be taken into account that the ERAWATCH database for instruments includes a main priority and a maximum of 3 secondary priorities[6]. The data used in this section include all instruments that mention at least in one of those 4 priority levels that PUPIN is a priority.

In some case the 4 priority fields could include two or even three of the above mentioned priorities, which mean that in some occasions the tables elaborated for this sub section can include double counting of the instruments. Moreover the database does not include the regional instruments so the real number of instruments -especially in the case of the highly decentralised countries- can be underestimated (See Box 1).

Box 1: Institutional setting of the R&D and innovation policies: The level of decentralisation

Concerning the features of country's R&D system, three different types of institutional set-ups can be identified (Eparvier, 2009):

- Majority of the countries (17) have a centralised R&D system like Cyprus, Denmark, Czech Republic, Finland, Ireland, Luxembourg, Malta, Netherlands, Bulgaria, Greece, Italy, Lithuania, Poland, Portugal, Slovakia, United Kingdom or France.
- Usually, countries are dominated by the public sector, nevertheless some countries as Luxembourg or Malta have a centralised R&D system with a domination of the private sector, or a public/private balance, Czech Republic.
- Also some countries as United Kingdom and France have a centralised R&D system with an increasing devolution to regional level.
- Some countries have a clear decentralised R&D system as Belgium or Sweden. While Austria, Germany and Spain have a multilevel R&D system in which both governmental and regional authorities have competences in R&D policy.
- Some other countries could not be classified regarding the country profile information (as Hungary, Latvia, Romania, Estonia).

[6] The country experts of ERA-watch choose for each instrument a maximum of four priorities (1 principal and 3 secondary categories)

Table 10: A comparison of type of policy instruments implemented in 27 EU countries based on the main priority of the instruments

Main policy priority	Share in R&D budget		Number of instruments (27 countries)	
1.6 Main policy priority	27+5 countries	27 countries	%	Num.
1.1.1 Strategy policy documents (official documents, policy consultation papers, green or white papers, Operational Programmes of Structural Funds)	0,00%	0,00%	0,49%	4
1.1.2 Activities of official advisory and consultative forum	0,00%	0,00%	0,25%	2
1.1.3 Policy Advisory services (technology foresight, scoreboard type activities, cluster mapping, sectoral studies of innovation)	0,11%	0,08%	0,74%	6
1.2.1 Strategic Research policies (long-term research agendas)	6,83%	5,35%	8,23%	67
1.2.2 Innovation strategies	0,52%	0,54%	0,61%	5
1.3.1 Cluster framework policies	6,75%	6,88%	4,55%	37
1.3.2 Horizontal measures in support of financing	6,58%	6,92%	2,58%	21
1.3.3 Other horizontal policies (ex. society-driven innovation)	0,17%	0,18%	0,98%	8
2.1.1 Policy measures concerning excellence, relevance and management of research in Universities	4,26%	3,78%	7,13%	58
2.1.2 Public Research Organisations	9,50%	9,95%	2,58%	21
2.1.3 Research and Technology Organisation (private non-profit)	0,14%	0,14%	0,25%	2
2.1.4 Research Infrastructures	5,07%	5,31%	3,07%	25
2.2.1 Support infrastructure (transfer offices, training of support staff)	0,12%	0,12%	1,47%	12
2.2.2 Knowledge Transfer (contract research, licences, research and IPR issues in public/academic/non-profit institutes)	1,54%	1,54%	3,56%	29
2.2.3 R&D cooperation (joint projects, PPP with research institutes)	9,30%	9,17%	12,41%	101
2.3.1 Direct support of business R&D (grants and loans)	10,06%	9,71%	6,27%	51
2.3.2 Indirect support to business R&D (tax incentives and guarantees)	5,97%	6,28%	1,47%	12
3.1.1 Awareness creation and science education	0,11%	0,11%	1,60%	13
3.1.2 Relation between teaching and research	0,00%	0,00%	0,49%	4
3.1.3 Stimulation of PhDs	1,09%	1,15%	2,95%	24
3.2.1 Recruitment of researchers (e.g. fiscal incentives)	1,32%	1,39%	2,21%	18
3.2.2 Career development (e.g. long-term contracts for university researchers)	0,73%	0,62%	1,60%	13
3.2.3 Mobility of researchers (e.g. brain-gain, transferability of rights)	0,41%	0,42%	2,70%	22
3.3.1 Job training (LLL) of researchers and other personnel involved in innovation	0,91%	0,95%	0,98%	8
3.3.2 Recruitment of skilled personnel in enterprises	0,37%	0,39%	1,72%	14
4.1.1 Support to sectoral innovation in manufacturing	1,94%	2,02%	2,83%	23
4.1.2 Support to innovation in services	0,51%	0,54%	0,98%	8
4.2.1 Support to innovation management and advisory services	2,86%	3,00%	4,05%	33
4.2.2 Support to organisational innovation incl. e-business, new forms of work organisations, etc	5,39%	5,63%	1,72%	14
4.2.3 Support to technology transfer between firms	1,58%	1,66%	1,47%	12
4.3.1 Support to innovative start-ups incl. gazelles	5,60%	5,52%	7,99%	65
4.3.2 Support to risk capital	8,91%	9,36%	4,30%	35
5.1.1 Support to the creation of favourable innovation climate (ex. roadshows, awareness campaigns)	0,05%	0,03%	1,35%	11
5.1.2 Innovation prizes incl. design prizes	0,00%	0,00%	0,98%	8
5.2.1 Fiscal incentives in support of the diffusion of innovative technologies, products and services	1,14%	1,10%	1,35%	11
5.2.2 Support and guidelines on innovative Green Public Procurement (GPP)	0,01%	0,01%	0,12%	1
5.3.1 Measures to raise awareness and provide general information on IPR	0,00%	0,00%	0,37%	3
5.3.2 Consultancy and financial incentives to the use of IPR	0,11%	0,11%	1,47%	12
5.3.3 Support to the innovative use of standards	0,01%	0,01%	0,12%	1
No answer	0,02%	0,02%	0,00%	
Total general	100,00%	100,00%	100,00 %	814

Source: own elaboration based on the ERAWATCH European Inventory of Research and Innovation Policy Measures
In green the instruments related with work package 5, In Salmon those related with work package 3 and in yellow with work package 4

Table 11 shows for each country the absolute number of instruments that are focussed on the improvement of the public private interaction. In total 301 instruments were identified that indicated at least in one of those 4 priority levels that public private interaction is a priority. Looking the data in more detail it can be stated that 36 instruments are aimed on the improvement of the infrastructure including the support for technology transfer offices and training of support staff. Another 109 instruments are aimed to improve and increase the knowledge transfer, while 236 instruments are aimed on the improvement of the public private R&D cooperation in joint projects or public private research institutes. These numbers include double counting because –as can be observed in the Annex 1- 75 instruments include at the same time 2 or 3 of the PUPIN priorities. Looking to the data of the specific countries (see **Table 1111**) almost no differences are observed. All countries implemented more instruments related with the public private cooperation than the other ones. And also they implemented more instruments related with the technology transfer than the ones related with the improvement of the infrastructures.

Table 12 offers information about the 301 instruments of 27 countries that are directly or indirectly focussed on the public private interaction. This table includes again all instruments that mention at least in one of those 4 priority levels that public private interaction is a priority. The first column shows the main priority of each of the instruments. As can be observed 46% of the instruments (138 out of 299)[7] have as main priority one of the three types of instruments directly focussed on public private interaction (PUPIN). Only 12 instruments has as main priority the improvement of the support infrastructure for public private interaction. 28 instruments has as main priority to foster technology transfer and another 98 instruments are primarily focussed on the public private cooperation (joint projects, PPP with research institutes). This means that for the rest of the instruments the public private interaction is a secondary priority. In 12,7% of the instruments (38) the PUPIN is part of a strategic long term policy; for 5,0% (15 instruments) it is part of a policy focussed on cluster building and for another 4,3% (13 instruments) it is part of a policy focussed on the improvement of the excellence and quality of research in universities. The other 97 instruments are related with broad number of research policies like the support of new technology based firms (2,7% of the instruments) the support of sectoral innovation (8), public research organisations (7) and research infrastructures (6 instruments).

The importance of the PUPIN within the global R&D and innovation policy mix is estimated by the number of policy instruments in relation to the total number of instruments. Although it is true that we do not have data on the budget this indicator offers a first idea about the importance of the PUPIN oriented instrument. In global terms it can be highlighted that 299 instruments included at least one of the PUPIN priorities in one of the 4 priority field. This is 36% of the total number of policy instruments included in ***European Inventory of Research and Innovation Policy Measure*** created by the ERAWATCH organisation. Two countries have a clearly higher percentage (Germany and Denmark with 74 and 75%) followed by Austria (58%) and Estonia (53%). This means that the majority of their R&D policy instruments include a direct reference to the public private interaction. Some countries with a low revealed importance of this priority are Iceland and Turkey where only 13% and 8% of the measures include direct references to the public private interaction.

It is difficult to compare certain groups of countries. Comparing the most wealthy ones (country 1 till 14 of the **Table 12**) with the countries with a lower GDP per capita we observe that the number of specific PUPIN instruments in the most wealthy countries is somewhat higher than in the case of the less developed countries the richest. However, the same is the case for the total number of policy instruments.

[7] For two instruments the main priority is not available

Table 11 The number of instruments that includes the promotion of public private interaction or linkages at least in one of the five priorities fields

	2.2.1 (a) Support infrastructure	2.2.2 (b) Knowledge Transfer	2.2.3 (c) R&D cooperation	Total* At least (a) or (b) or (c)	2.2.1 Support infrastructure	2.2.2 Knowledge Transfer	2.2.3 R&D cooperation
Austria	3	9	22	28	10,7%	32,1%	78,6%
Belgium	2	10	20	28	7,1%	35,7%	71,4%
Denmark	3	6	22	26	11,5%	23,1%	84,6%
France		7	11	16		43,8%	68,8%
Germany	4	12	26	30	13,3%	40,0%	86,7%
Greece	1	3	6	7	14,3%	42,9%	85,7%
Ireland	1	2	8	9	11,1%	22,2%	88,9%
Italy		1	8	8		12,5%	100,0%
Netherlands	1	3	6	10	10,0%	30,0%	60,0%
Spain	3	8	8	9	33,3%	88,9%	88,9%
Sweden		1	10	11		9,1%	90,9%
United Kingdom	2	11	15	20	10,0%	55,0%	75,0%
Finland		1	8	9		11,1%	88,9%
Iceland			2	2			100,0%
Bulgaria		2	1	3		66,7%	33,3%
Czech Republic	1	1	6	7	14,3%	14,3%	85,7%
Estonia	1	2	6	8	12,5%	25,0%	75,0%
Hungary	1	10	15	17	5,9%	58,8%	88,2%
Latvia	2	2	4	7	28,6%	28,6%	57,1%
Lithuania	1	2	5	6	16,7%	33,3%	83,3%
Poland	1	4	8	10	10,0%	40,0%	80,0%
Romania	2	3	3	4	50,0%	75,0%	75,0%
Slovak Republic	1	2	2	4	25,0%	50,0%	50,0%
Slovenia	2	3	3	6	33,3%	50,0%	50,0%
Turkey		2	2	3		66,7%	66,7%
Cyprus	3	1	6	8	37,5%	12,5%	75,0%
Malta	1	1	3	5	20,0%	20,0%	60,0%
Total general	36	109	236	301	12,0%	36,2%	78,4%

Source: own elaboration based on the ERAWATCH European Inventory of Research and Innovation Policy Measures

The total includes double counting in the case that the template of the instrument includes two or three of the here analysed priorities in the 4 priority fields.

2.2.1 Support infrastructure (transfer offices, training of support staff); 2.2.2 Knowledge Transfer (contract research, licences, research and IPR issues in public/academic/non-profit institutes); and 2.2.3 R&D cooperation (joint projects, PPP with research institutes).

Table 12 The main priority of 301 policy instruments focussed on public private interaction

(The ERAWATCH database for instruments includes a main priority and a maximum of 4 other priorities. This table includes all instruments that mention at least in one of those 4 priority levels that public private interaction is a priority. In fact these instruments include at least in one of their priority fields the priorities 2.2.1 or 2.2.2. or 2.2.3

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Country	Austria	Belgium	Denmark	France	Germany	Greece	Ireland	Italy	Netherlands	Spain	Sweden	United Kingdom	Finland	Iceland
1.1.3 Policy Advisory services (technology foresight, scoreboard type activities, cluster mapping, sectoral studies of innovation)					1									
1.2.1 Strategic Research policies (long-term research agendas)	6	1	8	5	5			1		1		1	1	1
1.2.2 Innovation strategies									1					
1.3.1 Cluster framework policies	2	1		1	2			1			2			
1.3.2 Horizontal measures in support of financing														
1.3.3 Other horizontal policies (ex. society-driven innovation)											1			
2.1.1 Policy measures concerning excellence, relevance and management of research in Universities	1	1						1	2			1	3	
2.1.2 Public Research Organisations	3				2									
2.1.3 Research and Technology Organisation (private non-profit)	1													1
2.1.4 Research Infrastructures					1	1								
2.2.1 Support infrastructure (transfer offices, training of support staff)		2	1							1		2		
2.2.2 Knowledge Transfer (contract research, licences, research and IPR issues in public/academic/non-profit institutes)	1	3	2	4	2				2	3	1	3		
2.2.3 R&D cooperation (joint projects, PPP with research institutes)	8	7	11	4	11	1	7	4	4	3	2	6	3	
2.3.1 Direct support of business R&D (grants and loans)	4	7			1	3		1		1		2		
2.3.2 Indirect support to business R&D (tax incentives and guarantees)			1	1								1		
3.1.2 Relation between teaching and research												1		
3.1.3 Stimulation of PhDs			2			1					1			
3.2.1 Recruitment of researchers (e.g. fiscal incentives)														
3.2.3 Mobility of researchers (e.g. brain-gain, transferability of rights)							1		1		1			
3.3.2 Recruitment of skilled personnel in enterprises														
4.1.1 Support to sectoral innovation in manufacturing	1				1						3			
4.1.2 Support to innovation in services													1	
4.2.1 Support to innovation management and advisory services		2										2		
4.2.2 Support to organisational innovation incl. e-business, new												1		

forms of work organisations, etc														
4.2.3 Support to technology transfer between firms														
4.3.1 Support to innovative start-ups incl. gazelles	1	3			1		1							
4.3.2 Support to risk capital		1	1											
5.1.1 Support to the creation of favourable innovation climate (ex. roadshows, awareness campaigns)						1								
5.2.1 Fiscal incentives in support of the diffusion of innovative technologies, products and services														
5.3.1 Measures to raise awareness and provide general information on IPR					1									
5.3.2 Consultancy and financial incentives to the use of IPR					1								1	
Not classified				1	1									
Total number of instruments directly (as main priority) or indirectly (as secondary priority) focussed on P-P interaction	28	28	26	16	30	7	9	8	10	9	11	20	9	2
Total number of instruments in the country	48	79	35	45	40	16	30	24	35	39	31	50	42	15
% of instruments aimed at Public Private Interaction	58,3	35,4	74,3	35,5	75	43,8	30,0	33,3	28,6	23,1	35,5	40,0	21,4	13,3

(Continues) The main priority of 301 policy instruments focussed on public private interaction

	15	16	17	18	19	20	21	22	23	24	25	26	27	28
	Bulgaria	Czech Republic	Estonia	Hungary	Latvia	Lithuania	Poland	Romania	Slovak Republic	Slovenia	Turkey	Cyprus	Malta	Total general
1.1.3 Policy Advisory services (technology foresight, scoreboard type activities, cluster mapping, sectoral studies of innovation)														1
1.2.1 Strategic Research policies (long-term research agendas)		2					1		1	1		1	2	38
1.2.2 Innovation strategies												1		2
1.3.1 Cluster framework policies		1	2	1								2		15
1.3.2 Horizontal measures in support of financing					1									1
1.3.3 Other horizontal policies (ex. society-driven innovation)														1
2.1.1 Policy measures concerning excellence, relevance and management of research in Universities			4											13
2.1.2 Public Research Organisations				1				1						7
2.1.3 Research and Technology Organisation (private non-profit)						1								3
2.1.4 Research Infrastructures				2	1				1					6
2.2.1 Support infrastructure (transfer offices, training of support staff)			1		1		1	1		2				12
2.2.2 Knowledge Transfer (contract research, licences, research and IPR issues in public/academic/non-profit institutes)	2					1	2	1		1				28
2.2.3 R&D cooperation (joint projects, PPP with research institutes)		2	1	8	2	2	4	1		2	2	1	2	98
2.3.1 Direct support of business R&D (grants and loans)				2			2		2			1	1	27
2.3.2 Indirect support to business R&D (tax incentives and guarantees)														3
3.1.2 Relation between teaching and research														1
3.1.3 Stimulation of PhDs														4
3.2.1 Recruitment of researchers (e.g. fiscal incentives)				1										1
3.2.3 Mobility of researchers (e.g. brain-gain, transferability of rights)	1													4
3.3.2 Recruitment of skilled personnel in enterprises					1									1
4.1.1 Support to sectoral innovation in manufacturing		1				1					1			8
4.1.2 Support to innovation in services														1
4.2.1 Support to innovation management and advisory services				1										5
4.2.2 Support to organisational innovation incl. e-business, new forms of work organisations, etc														1
4.2.3 Support to technology transfer between firms						1								1
4.3.1 Support to innovative start-ups incl. gazelles		1			1									8
4.3.2 Support to risk capital														2
5.1.1 Support to the creation of favourable innovation climate												1		2

(ex. roadshows, awareness campaigns)														
5.2.1 Fiscal incentives in support of the diffusion of innovative technologies, products and services				1										1
5.3.1 Measures to raise awareness and provide general information on IPR														1
5.3.2 Consultancy and financial incentives to the use of IPR												1		3
Total number of instruments focussed on P-P interaction	3	7	8	17	7	6	10	4	4	6	3	8	5	301
Total number of instruments in the country	13	20	15	52	28	32	40	10	10	20	34	18	13	834
% of instruments aimed at Public Private Interaction	23,1	35,0	53,3	32,7	25,0	18,8	25,0	40,0	40,0	30,0	8,8	44,4	38,5	36,1

Source: own elaboration based on the ERAWATCH European Inventory of Research and Innovation Policy Measures

4. Policy trends detected in the ERA-WATCH country profiles and country reports[8]

To complement the data on the policy instruments this section offers a short review on the policy trends. The data used in this section are based on a review of the ERAWATCH country reports and profiles (See **table 13).** As can be observed in this table, 101 different policy trends of 13 countries were mentioned. The countries that mentioned the major number of new trends were Iceland, Malta and the United Kingdom in the reports with 10 or more trends. While the countries that mention less new policy trends are Turkey, Belgium and Bulgaria.

More important are the type of trends detected in the reports. The most frequently mentioned one is the cluster building policies (mentioned by 9 countries) followed by the promotion of technology transfer and applied R&D in the public research centres (mentioned by 8 countries). This trend seems to be related with the policy trends focussed on the improvement of the excellence of the public research by the means of the creation of excellence centres and the shift from institutional block funding to competitive funding (both trends are mentioned by 7 countries each). In other words the policies related with the science industrial linkages (subject of analyses of the work package 4) receive increasing attention due to a more intensive support for technology transfer. To assure such transfer the public research system should improve its excellence being a second important aspect detected in the policy trends. Other policy trends mentioned frequently (by six countries) are the increase of directs and indirect support for R&D expenditures (for private R&D expenditures this is related to work package 3), the increase of priority setting mechanisms, the improvement of the public research system (related to work package 5), the introduction of new human resource policies and a growing level of coordination of the R&D and innovation policies. In general, these trends confirm the concerns about this kind of shortcomings and challenges mentioned in Section 2. In other words the new policy trends are focussed on the solution of the existing obstacles and challenges.

As already mentioned before, the Country profiles and reports offer to a certain level standardised information although the reports are written by different country experts with different backgrounds and interest. Therefore it has to be taken into account that some trends not mentioned by the country expert can exist. However this description offers some general vision about the main features of the 13 analysed countries.

[8] The methodology used in this section is explained in the introduction

Table 13 Policy trends detected in the ERAWATCH country profiles and country reports

	Austria	Belgium	Bulgaria	Czech Republic	Estonia	France	Germany	Iceland	Malta	Spain	Sweden	Turkey	U.K.	Total General
Increase direct or indirect support for R&D expenditures	1					1		1	1	1	1			6
Creation of tax incentives		1		1						1			1	4
Attraction of foreign R&D						1								1
Increase of prioritisation					1				1					2
Promotion of priority setting and critical mass policies (long term strategy)			1					1	1	1	1		1	6
New cluster building policies	1			1		1	1	1	1		1	1	1	9
Creation of Infrastructure policies							1			1				2
Promotion of cooperation in R&D (in general)										1			1	2
Improvement of the public research institutes an high educational institutes (ORI/HEI)	1				1	1		1		1			1	6
a shift from block funding to competitive funding	1		1	1		1		1		1	1			7
Creation of competence centres	1	1		1	1		1	1		1				7
Public private collaboration and combine innovation and research						1	1	1		1	1		1	6
Promotion of applied R&D in HEI/PRI and technology transfer to firms			1	1		1		1	1	1		1	1	8
New Human Resources policies					1			1	1	1	1		1	6
Internationalisation		1			1					1		1	1	5
System building / Governance of the system			1				1	1	1	1				5
Policy management						1		1						2
Growing emphasis on evaluation of the NIS and R&D policies		1		1				1		1		1		5
Growing coordination of the policies	1				1		1	1	1	1				6
Growing coordination of the policy makers	1						1			1				3
Other trends							1				1		1	3
TOTAL	7	4	4	6	6	8	8	13	8	16	7	4	10	101

Source: own elaboration based on the ERAWATCH country reports and profiles

5. R&D and innovation policies versus the culture of evaluation and impact assessment

In this part the evaluation culture in the different countries will be analysed. The main source of information will be the ***European Inventory of Research and Innovation Policy Measure*** created by the ERAWATCH organisation that includes a short broad information (templates) of 814 instruments of 27 countries. This database –facilitated by the ERAWATCH organisation- includes three questions about evaluation studies. The first one indicates if an ex ante evaluation was carried out. The second one asks if a mid-term or on going evaluation was carried out during the implementation of the instrument and the third one is about the ex post evaluation. This last option implies an impact assessment and permits to identify –theoretically- if the instrument achieved the foreseen goals and which aspects were problematic. Although in this section a global overview will be offered, a broader analysis will be carried out in relation with the ex post evaluation while this is the only moment when a real impact assessment can be carried out systematically. Especially in the case of the ex ante evaluation and the final outcome of the policy can differ substantially. The CIA4OPM project defines an evaluation study as an ex post study that will be carried out after the implementation of the instruments with enough delay in time to assure that the full impact of the instrument can be measured. Therefore in this section the attention is concentrated mainly on the instruments that where subject of ex-post evaluation.

5.1.- Country differences in evaluation and impact assessment

Table 14 shows the main results obtained from the ERAWATCH database. It can be observed that 55,8% of the 814 instruments were not evaluated at all. These instruments were not assessed before, during or after their implementation. In fact 25,7% of the instruments were analysed before the implementation and for 31% there was carried out a mid term or following up evaluation. Only for almost 19% of the instruments an ex post evaluation was done. In other words, for only one fifth of the policies there was carried out an evaluation of the real impact of the instruments.

These results have to be tinged once looking to the country differences. If we look to the general percentage of instruments that were not assessed at all we can highlight a group of 7 countries of which more than 75% of the instruments were never evaluated (Hungary, Ireland, Romania, Spain, Malta the Czech Republic and Cyprus). While the most active countries are surprisingly Lithuania and Bulgaria that evaluated respectively 87 and 76% of their instruments. Followed directly by some of the most wealthy countries like Germany, Austria, Denmark and Finland. And Latvia. The presence of Lithuania in this group depends basically on the fact that they carried out an ex ante evaluation for 78% of the instruments, however, surprisingly this country shows no ex post evaluations.

Taken into account only the ex post evaluation –e.g. the evaluation of the final impact of the instruments and of specific interest of the CIA4OPM project - it can be observed that only 19% of the instruments were assessed. In this case the most active countries are Denmark, Germany, Bulgaria and Finland that carried out an impact assessment in 47-59% of their instruments, followed by Estonia and Latvia that evaluated the impact for 36-39% of their instrument and Italy, Luxembourg and the Slovak Republic that carried out an ex-post evaluation for almost 30% of their instruments. In all other countries the ERAWATCH database shows that less than 20% of the instruments are evaluate ex post.

Table 14 Evaluation of the policy instruments: A quantitative assessment on country level

	Number of instruments	At least % Ex ante	At least % Following up	At least % Ex post	Not evaluated at all
Austria	48	14,6%	64,6%	10,4%	31,3%
Belgium	28	3,6%	39,3%	0,0%	57,1%
Bulgaria	17	47,1%	64,7%	52,9%	23,5%
Cyprus	18	0,0%	0,0%	0,0%	100,0%
Czech Republic	21	0,0%	4,8%	0,0%	95,2%
Denmark	35	60,0%	68,6%	57,1%	31,4%
Estonia	18	27,8%	33,3%	38,9%	61,1%
Finland	42	38,1%	54,8%	47,6%	38,1%
France	44	6,8%	27,3%	11,4%	63,6%
Germany	39	38,5%	51,3%	59,0%	28,2%
Greece	16	43,8%	18,8%	6,3%	56,3%
Hungary	51	17,6%	3,9%	2,0%	76,5%
Iceland	NA	NA	NA	NA	NA
Ireland	30	6,7%	13,3%	13,3%	76,7%
Italy	24	20,8%	20,8%	29,2%	62,5%
Latvia	28	57,1%	42,9%	35,7%	39,3%
Lithuania	32	78,1%	12,5%	0,0%	12,5%
Luxembourg	14	14,3%	50,0%	28,6%	50,0%
Malta	25	8,0%	4,0%	4,0%	92,0%
Netherlands	35	5,7%	51,4%	14,3%	45,7%
Poland	39	33,3%	2,6%	2,6%	66,7%
Portugal	45	42,2%	26,7%	0,0%	42,2%
Romania	10	20,0%	10,0%	10,0%	80,0%
Slovak Republic	10	30,0%	40,0%	30,0%	60,0%
Slovenia	20	15,0%	40,0%	20,0%	50,0%
Turkey					
Spain	47	14,9%	17,0%	14,9%	80,9%
Sweden	28	32,1%	25,0%	17,9%	57,1%
United Kingdom	50	14,0%	32,0%	20,0%	56,0%
Total general	769	24,7%	31,2%	19,9%	55,8%

Source: own elaboration based on the ERAWATCH European Inventory of Research and Innovation Policy Measures The last three columns are based on the country profile included in the ERAWATCH website.

Table 15: Evaluation culture: A qualitative assessment

Country	Ex post eval.	Trend	Qualitative assessment of the evaluation culture included in the ERAWATCH country profiles published in the web site
Austria	10,4%	Growing importance	The research policy evaluation has become more important during the last decade, leading to a well established culture of policy evaluation.
Belgium	0,0%	Growing importance	Evaluations of R&D policy instruments and structures are becoming more frequent throughout Belgium, however systemic evaluations are not yet implemented.
Bulgaria	52,9%	A recent activity of growing importance	The strategic framework for the development of research policy in Bulgaria is relatively new, and the timing alone has not allowed for any formal evaluation of its implementation so far.
Cyprus	0,0%		The country profile did not offer a general assessment of its evaluation culture
Czech Republic	0,0%	A recent activity of growing importance	Evaluation has come to play an increasingly prominent role in Czech R&D over the past five years …….. before this the evaluation of R&D results was at such a low level that it was virtually absent. As such, the evaluation of R&D is still a relatively novel phenomenon in the Czech Republic.
Denmark	57,1%		Evaluation of Danish research has become quite common during the 1990s.
Estonia	38,9%		The Ministry of Economic Affairs and Communications has a fairly regular pattern of commissioning feasibility studies prior to launching any policy programmes, and evaluations after the first or second round of the programme.
Finland	47,6%		Evaluation activities are extensively and systematically carried out in Finland.
France	11,4%	Growing importance	The French evaluation culture has changed considerably since the mid-1990s. …It should be noted that in France, in most cases, no evaluation plan is established, and evaluations, if any, are carried out on an ad hoc basis.
Germany	59,0%		As in the other industrialised countries, three "layers" have now been established in the evaluation procedures in the area of research and innovation policy
Greece	6,3%		Ex-post evaluation of programmes and funding schemes was introduced in the late 1980s by the General Secretariat for Research and Technology (GSRT) on an ad hoc basis.
Hungary	2,0%		Evaluation of RTDI policy measures is not a widely used practice in Hungary
Iceland	NA		R&D programmes evaluation is a recent and still underdeveloped practice in Iceland.
Ireland	13,3%	Growing importance	Policy and programme evaluations have become an important element of the Irish policy development and review infrastructure.
Italy	29,2%	Growing importance	A lack of formal and substantial evaluation of R&D in the public sector has always been considered a weak point of the Italian research sector. The research policy evaluation culture in Italy is still weakly developed, although a significant improvement is expected in the forthcoming years due to the establishment of a national agency for the evaluation of research (ANVUR)
Latvia	35,7%	Growing importance	Since early 1990ties, evaluation practices in the area of research in Latvia have gradually developed from selected overarching evaluations of national research and development (R&D) system to more recent attempts to evaluate more systematically also specific research policy instruments.
Lithuania	0,0%	Growing importance	The first attempts to assess the performance of Lithuanian R&D system and the impact of R&D policy were made in order to develop general policy documents, such as the white paper on science and technologies (2002). The World Bank Report "Lithuania. Aiming for the Knowledge Economy" (2003)…… The whole evaluation cycle is not embedded in national policy making. Only a few programmes have undergone the entire evaluation cycle. …….However, there is no single or common evaluation practice that each research programme should undergo.
Luxembourg	28,6%	Growing importance	Luxembourg is not a country with a tradition of evaluation of its policies. However recently, two major reports have been published that show a change in the role of evaluation within the country.
Malta	4,0%	A recent activity of growing importance	There is no systematic review system in place for Malta's research and innovation policy. It is only recently that the culture of systematic evaluations within government has started to emerge in a formal way, this being largely due to EU membership and increased participation in the EU Programmes

Netherlands	14,3%		Research and innovation policy is based upon a thorough evaluation of the Dutch research and innovation system. In general, research and innovation policy design in the Netherlands is underpinned by analyses, evaluations, benchmarks, prioritisation and stakeholder involvement.
Poland	2,6%	Growing importance	Evaluation is relatively a new discipline in Poland and there are no evidences suggesting that ex-post, mid-term evaluations are used in the research policy area.
Portugal	0,0%	Growing importance	Evaluation exercises were initially undertaken to comply with European Commission requirements. More recently, however, awareness about the advantages of evaluation has developed to a certain extent, with evaluation conclusions being considered as important milestones for developing policy.
Romania	10,0%	Growing importance	The culture of research policy evaluation in the country is moderately developed and has improved in recent years under the pressure of public accountability and alignment to EU rules and procedures, especially in the context of the EU accession.
Slovak Republic	30,0%	Growing importance	Back in the 1990s, process of evaluation was underdeveloped. Since the early 2000s, the Slovak government increasingly became aware that of ….. (*the importance of)* …… the quality of policy-making and/or benchmarking and evaluation practices. The …….. carries out regular evaluations of the State Research & Development Programmes……
Slovenia	20,0%	Growing importance	The evaluation practice for research programmes and measures to promote R&D has been developing gradually and is becoming more systematic.
Spain	14,9%	Growing importance (1)	The evaluation of the impact and the efficiency of the policy measures on R&D is not an important topic for policy makers, opposition and the public agencies that manage the support schemes. It is a low profile activity.
Sweden	17,9%	Growing importance	Today, evaluations have a different objective mainly due to declining public budgets. It has become more important to motivate ongoing measures and increase their effectiveness. Still there is no systematic approach in place comparable to those found in England or Germany.
Turkey			There is no regular monitoring and evaluation mechanism for policies and programmes in Turkey.
United Kingdom	20,0%		The UK can be said to have a well developed culture of evaluation, in that many government supported programmes and schemes are subject to review and assessment and such processes are built in at the programme design stages. Most innovation support schemes are evaluated, either by in-house or independent teams,

Source: own elaboration. The first two columns are base on the ERAWATCH European Inventory of Research and Innovation Policy Measures instruments. The last two columns are taken directly from the country profiles of the ERAWATCH website (Data downloaded in February 2010).

Based on the qualitative data of the ERA-website Patrick Evarpier argues that evaluation of R&D and innovation polices has strongly developed among European Union Member States. However, it seems to have become a standard practice in some countries only. He classified the European countries in four groups based on the existing evaluation culture (Patrick Eparvier, 2009)[9]

- A first group is made of **leading countries in evaluation** that is to say countries that have now a well-established culture of evaluation (Austria, Denmark, Finland, Germany, Ireland, the Netherlands, Sweden and the United Kingdom). In these countries, systematic evaluations are carried out to evaluate programmes and institutions;

- A second group gathers **countries that have strongly reinforced evaluation practices, structures and culture** (Belgium, Czech Republic, Estonia, France, Portugal and Slovenia). These countries have started recently to systematise evaluation of programmes and of institutions;

[9] Taken from ERAWATCH Research Inventory Report: overview across EU countries (Updated 18/5/2009) http://cordis.europa.eu/erawatch.

- A third group is composed of **countries that have recently established or that are about to set up evaluation practices, structures and culture** (Bulgaria, Italy, Luxembourg, Malta, Romania and Slovakia). Two of these countries started with evaluation of the whole research system (Bulgaria and Slovakia);

- A fourth group brings together **countries that do carry out evaluations but not on a systematic basis** (Cyprus, Greece, Hungary, Latvia, Lithuania, Poland and Spain).

The above quote of the ERAWATCH overview report for all EU countries offers information about the global culture of evaluation taken into account ex ante, ongoing and ex post evaluation of instruments and the assessment of the national innovation systems. However in this study the impact evaluation –carried out sufficient time after the instruments implementation- is considered as the most important way of policy evaluation. Therefore **Table 16** was elaborated. This table shows the relationship of the percentage of instruments that was evaluated ex post with the qualitative assessment made by the country correspondents.

Table 16: The ex post evaluation culture: a qualitative versus quantitative assessment

	Qualitative assessment of the evaluation culture included in the ERAWATCH country profiles published in the web site		
Percentage of instruments evaluated ex post	Low evaluation culture (Turkey*)	Frequent but not systematic evaluation	Systematic or well established evaluation culture
Less than 10% (Cyprus*)	Czech Republic, Lithuania, Portugal, Hungary, Poland, Malta, Greece	Belgium	
Between 10 and 30%	Luxembourg Spain Italy	Romania, France, Ireland, Sweden, Slovenia	Netherlands, Austria, United Kingdom
Between 30 and 40%		Slovak Republic, Latvia, Estonia	
Over 45%	Bulgaria		Finland, Denmark, Germany

Source: Own elaboration based on the former tables. The order of the countries is related with the percentage of ex post evaluated instruments (from low to high). No qualitative assessment was obtained for Cyprus* and no statistical data was available for Turkey.

The data reveal some aspects that are not according the information included in the country profiles offered by ERAWATCH in their website. The ERAWATCH country profiles offer a general description of the evaluation culture in relation with the countries R&D policies. However this general opinion does not always coincide with the revealed evaluation behaviour based on the data on instrument level. In general the percentage of ex post evaluated instruments detected in **Table 14** coincide with the qualitative assessment of

Table 15. However two clear exceptions can be observed (see **Table 16**). The first one is the Belgium case where the country profile insinuates a more or less well developed evaluation culture however the templates of the instruments indicates an absence of ex post evaluation. The second case is Bulgaria that has a high percentage of ex post evaluated instrument however the qualitative assessment talks about a low evaluation culture. In the case of the Netherlands, Austria and the United Kingdom the qualitative assessment reveal a systematic well established evaluation culture however the database shows that only 10 to 30% of the instruments are evaluated.

As a final remark it has to be stated that the information on the existence of evaluation studies is not always clear and easy to find. It has to be taken into account that evaluation studies belong to the so called "grey literature" which means that probably a number of instruments were evaluated however these studies were never be published. Moreover the changes in the names of the instruments could imply that it is difficult to match the instruments with certain evaluation studies in the past. Therefore, probably the number of evaluated instruments are underestimated, however, from our point of view, this does affect the general conclusions of this section. The evaluation of the policy instruments in most countries an ad hoc activity and only a few countries carry out such studies on a systematic way.

5.2.- Evaluation intensity by type of instruments[10]

In this subsection the evaluation intensity (defined as the percentage of instruments evaluated **ex post**) is analysed. It can be highlighted that the most evaluated type of instruments are the ones aimed at the improvement of the excellence in universities and public research organisations followed directly by the long term strategic research policies with an evaluation intensity (EI) of respectively 48 and 45%. In six other R&D policy fields the EI is above 30% like the instruments for support of public research organisations, the support infrastructures (like technology transfer offices); the mobility of researchers and the tax incentives. On the bottom of the list a broad number of policies apparently never has been evaluated like the support for innovation management and advisory; support for technology transfer between firms, the recruitment of skilled personnel in enterprises

As already mentioned the evaluation studies belong to the so called "grey literature" which means that probably a number of instruments were evaluated however this studies were never be published. Moreover the changes in the names of the instruments could imply that it is difficult to match the instruments with certain evaluation studies in the past. Therefore probably the number of evaluated instruments is underestimated.

Analysing the instruments that are subject of the CIA4OPM project it can be highlighted that the instruments aimed on the direct or indirect promotion of private R&D investments (WP3) are evaluated frequently. In the case of the indirect support for R&D 44% of the instruments where evaluated at a certain moment (ex ante, during the implementation or ex post) while 25% of the instruments where valuated ex post. While in the case of the direct support almost 50% was evaluated at a certain moment and almost 16% was evaluated ex post. Almost 43% of the instruments focussed on risk capital and almost 37% of the measures aimed on the creation of new technology based firms were evaluated at a certain moment. In the case of the ex post evaluation these percentages were respectively 14,3% and 9,2%

[10] Although the tables contains the data of all the types of instruments, this sub section only refers to those type policies of which at least exist 10 instruments. If the number is below this minimum the percentages are very sensitive for small changes.

In the case of three types of instruments whose main priority is related to the science-industrial relationships or linkages (WP4) it can be observed that almost 50% of them were evaluated ex ante, ex post or during the implementation. Looking to the ex post evaluation the percentages differ for each of them. In the case of the instruments focussed on the public private R&D cooperation and measures considered as the support infrastructure for public private linkages around 24-25% of the instruments were evaluated ex post, while in the case of the instrument to foster knowledge transfer this percentage was almost 14%.

The instrument related with the public research organisation and universities (WP5) were frequently evaluated. Almost 60% of the policies concerning excellence, relevance and management of R&D in universities were evaluated on a certain moment while 48% of them were evaluated ex-post. In the case of the policies oriented to the public research organisations these percentages are respectively 43% and 38%. While in the case of the policies towards the public research infrastructures almost no ex post or un going evaluation studies where carried out. Although in 28% of the cases a ex ante evaluation study was done.

Table 17: Evaluation of the policy instruments: A comparison of type of policy instruments based on the main priority of the instruments

1.6 Main policy priority	Total general	At least % Ex ante	At least % Following up	At least % Ex post	Not evaluated
1.1.1 Strategy policy documents (official documents, policy consultation papers, green or white papers, Operational Programmes of Structural Funds)	4	0,0%	25,0%	0,0%	75,0%
1.1.2 Activities of official advisory and consultative forum	2	0,0%	0,0%	0,0%	100,0%
1.1.3 Policy Advisory services (technology foresight, scoreboard type activities, cluster mapping, sectoral studies of innovation)	6	33,3%	16,7%	33,3%	33,3%
1.2.1 Strategic Research policies (long-term research agendas)	67	44,8%	59,7%	44,8%	29,9%
1.2.2 Innovation strategies	5	20,0%	0,0%	0,0%	80,0%
1.3.1 Cluster framework policies	37	32,4%	16,2%	16,2%	54,1%
1.3.2 Horizontal measures in support of financing	21	38,1%	19,0%	28,6%	38,1%
1.3.3 Other horizontal policies (ex. society-driven innovation)	8	37,5%	0,0%	12,5%	50,0%
2.1.1 Policy measures concerning excellence, relevance and management of research in Universities	58	44,8%	48,3%	48,3%	39,7%
2.1.2 Public Research Organisations	21	33,3%	38,1%	38,1%	57,1%
2.1.3 Research and Technology Organisation (private non-profit)	2	0,0%	100,0%	0,0%	0,0%
2.1.4 Research Infrastructures	25	28,0%	8,0%	4,0%	68,0%
2.2.1 Support infrastructure (transfer offices, training of support staff)	12	8,3%	50,0%	25,0%	50,0%
2.2.2 Knowledge Transfer (contract research, licences, research and IPR issues in public/academic/non-profit institutes)	29	24,1%	34,5%	13,8%	51,7%
2.2.3 R&D cooperation (joint projects, PPP with research institutes)	101	30,7%	26,7%	23,8%	52,5%
2.3.1 Direct support of business R&D (grants and loans)	51	31,4%	31,4%	15,7%	51,0%
2.3.2 Indirect support to business R&D (tax incentives and guarantees)	12	25,0%	16,7%	25,0%	66,7%
3.1.1 Awareness creation and science education	13	38,5%	38,5%	23,1%	38,5%
3.1.2 Relation between teaching and research	4	0,0%	0,0%	0,0%	100,0%
3.1.3 Stimulation of PhDs	24	25,0%	25,0%	20,8%	66,7%
3.2.1 Recruitment of researchers (e.g. fiscal incentives)	18	16,7%	11,1%	16,7%	83,3%
3.2.2 Career development (e.g. long-term contracts for university researchers)	13	23,1%	46,2%	23,1%	53,8%
3.2.3 Mobility of researchers (e.g. brain-gain, transferability of rights)	22	36,4%	31,8%	27,3%	59,1%

3.3.1 Job training (LLL) of researchers and other personnel involved in innovation	8	12,5%	25,0%	25,0%	62,5%
3.3.2 Recruitment of skilled personnel in enterprises	14	21,4%	7,1%	0,0%	71,4%
4.1.1 Support to sectoral innovation in manufacturing	23	13,0%	8,7%	4,3%	82,6%
4.1.2 Support to innovation in services	8	0,0%	0,0%	0,0%	100,0%
4.2.1 Support to innovation management and advisory services	33	18,2%	27,3%	0,0%	57,6%
4.2.2 Support to organisational innovation incl. e-business, new forms of work organisations, etc	14	21,4%	21,4%	7,1%	57,1%
4.2.3 Support to technology transfer between firms	12	66,7%	25,0%	0,0%	16,7%
4.3.1 Support to innovative start-ups incl. gazelles	65	15,4%	21,5%	9,2%	63,1%
4.3.2 Support to risk capital	35	8,6%	28,6%	14,3%	57,1%
5.1.1 Support to the creation of favourable innovation climate (ex. roadshows, awareness campaigns)	11	36,4%	18,2%	9,1%	45,5%
5.1.2 Innovation prizes incl. design prizes	8	0,0%	0,0%	0,0%	100,0%
5.2.1 Fiscal incentives in support of the diffusion of innovative technologies, products and services	11	0,0%	9,1%	9,1%	81,8%
5.2.2 Support and guidelines on innovative Green Public Procurement	1	0,0%	100,0%	0,0%	0,0%
5.3.1 Measures to raise awareness and provide general info. On IPR	3	0,0%	0,0%	0,0%	100,0%
5.3.2 Consultancy and financial incentives to the use of IPR	12	8,3%	33,3%	8,3%	58,3%
5.3.3 Support to the innovative use of standards	1	0,0%	0,0%	0,0%	100,0%
Total	814	27,1%	28,4%	19,9%	55,0%

Source: own elaboration based on the ERAWATCH European Inventory of Research and Innovation Policy Measures

Conclusions

In this section some brief conclusions will be offered in relation to the science – industry relationships (SIRE). Like already mentioned several times, for the correct interpretation of the results presented in this report it has to be taken into account that the ERAWATCH country report offers more or less standardised information however they are prepared by different country correspondents with different backgrounds and interests. This could imply that certain aspects are not mentioned in all country reports. Concluding, the fact that for a specific country a certain aspect, obstacle or trend is not mentioned can not be interpreted as if it does not exist. Therefore the correct interpretation of the results presented here is that it highlights the global situation and main trends.

The analysis of Section 2 did identify 3 obstacles and challenges directly related with the public private linkages. Eight countries mentioned the public research organisation and universities versus the agents of the private sector. Another six countries mentioned the lack of technology transfer and 10 countries did mention the lack of usefulness of results or the low level of commercialisation. In fact those three aspects are directly related with each other and it was not always clear to identify in the text of the country reports and profiles to which of the three aspects a certain statement should be assigned. In fact only two countries did not mention none of the three aspects (Germany and Malta). And the problematic public private relationships and interaction are mentioned by all type of countries independently of their size, wealth or innovative capability.

Therefore it can be concluded that the usefulness and transfer of the technologies from public research organisations (including the universities) preoccupies almost all countries. This fact is reflected in Section 3.1 that reveals a high number of policy instruments focussed on the improvement and increase of public private cooperation, the technology transfer and the level of excellence of public research. This last aspect is necessary to improve the usefulness of the public research results. Taken into account only the main priority of the instruments, these three policies do absorb almost 15% of the budgets and 23% of the instruments. Taken into account also the number of instruments and budgets that consider this objectives as a secondary priority their importance would increase substantially.

In the case of evaluation culture it can be observed that almost 50% of the three types of instruments focussed on the science-industrial relationships or linkages was evaluated ex ante, ex post or during the implementation. Looking to the ex post evaluation, the percentages differ between the three types of instruments. In the case of the instruments focussed on the public private R&D cooperation and the measures considered as the support infrastructure for public private linkages around 24-25% of the instruments were evaluated ex post while in the case of the instrument to foster knowledge transfer this percentage was almost 14%.

ANNEXES

ANNEXES SECTION 3

Annex 1: Public private interaction priorities the relation between the main priority versus the secondary priorities (absolute numbers of instruments)

	1	2	3	4	5	6	7	Total general
	2.2.1	2.2.2	2.2.3	2.2.1 / 2.2.3	2.2.2 / 2.2.3	2.2.1 / 2.2.2	2.2.1 / 2.2.2 / 2.2.3	
Austria	2	3	17		5	1		28
Belgium		6	18		2	2		28
Denmark	1	1	19		3	2		26
France		5	9		2			16
Germany	1	2	15	2	9	1		30
Greece	1		3		3			7
Ireland		1	7				1	9
Italy			7		1			8
Netherlands	1	3	6					10
Spain		1	1		4		3	9
Sweden		1	10					11
United Kingdom	1	3	8		7	1		20
Finland		1	8					9
Iceland			2					2
Bulgaria		2	1					3
Czech Republic	1		5		1			7
Estonia		1	6			1		8
Hungary	1	1	6		9			17
Latvia	1	1	4			1		7
Lithuania	1		3		2			6
Poland	1	1	5		3			10
Romania			1		1	1	1	4
Slovak Republic		1	2			1		4
Slovenia		2	2	1		1		6
Turkey		1	1		1			3
Cyprus	1	1	4	2				8
Malta	1	1	3					5
Total general	14	39	173	5	53	12	5	301

Source: own elaboration based on the ERAWATCH European Inventory of Research and Innovation Policy Measures

Annex 2 Public private interaction priorities the relation between the main priority versus the secondary priorities (Percentages)

	1	2	3	4	5	6	7	Total general
	2.2.1	2.2.2	2.2.3	2.2.1 / 2.2.3	2.2.2 / 2.2.3	2.2.1 / 2.2.2	2.2.1 / 2.2.2 / 2.2.3	
Austria	7,1%	10,7%	60,7%	0,0%	17,9%	3,6%	0,0%	100,0%
Belgium	0,0%	21,4%	64,3%	0,0%	7,1%	7,1%	0,0%	100,0%
Denmark	3,8%	3,8%	73,1%	0,0%	11,5%	7,7%	0,0%	100,0%
France	0,0%	31,3%	56,3%	0,0%	12,5%	0,0%	0,0%	100,0%
Germany	3,3%	6,7%	50,0%	6,7%	30,0%	3,3%	0,0%	100,0%
Greece	14,3%	0,0%	42,9%	0,0%	42,9%	0,0%	0,0%	100,0%
Ireland	0,0%	11,1%	77,8%	0,0%	0,0%	0,0%	11,1%	100,0%
Italy	0,0%	0,0%	87,5%	0,0%	12,5%	0,0%	0,0%	100,0%
Netherlands	10,0%	30,0%	60,0%	0,0%	0,0%	0,0%	0,0%	100,0%
Spain	0,0%	11,1%	11,1%	0,0%	44,4%	0,0%	33,3%	100,0%
Sweden	0,0%	9,1%	90,9%	0,0%	0,0%	0,0%	0,0%	100,0%
United Kingdom	5,0%	15,0%	40,0%	0,0%	35,0%	5,0%	0,0%	100,0%
Finland	0,0%	11,1%	88,9%	0,0%	0,0%	0,0%	0,0%	100,0%
Iceland	0,0%	0,0%	100,0%	0,0%	0,0%	0,0%	0,0%	100,0%
Bulgaria	0,0%	66,7%	33,3%	0,0%	0,0%	0,0%	0,0%	100,0%
Czech Republic	14,3%	0,0%	71,4%	0,0%	14,3%	0,0%	0,0%	100,0%
Estonia	0,0%	12,5%	75,0%	0,0%	0,0%	12,5%	0,0%	100,0%
Hungary	5,9%	5,9%	35,3%	0,0%	52,9%	0,0%	0,0%	100,0%
Latvia	14,3%	14,3%	57,1%	0,0%	0,0%	14,3%	0,0%	100,0%
Lithuania	16,7%	0,0%	50,0%	0,0%	33,3%	0,0%	0,0%	100,0%
Poland	10,0%	10,0%	50,0%	0,0%	30,0%	0,0%	0,0%	100,0%
Romania	0,0%	0,0%	25,0%	0,0%	25,0%	25,0%	25,0%	100,0%
Slovak Republic	0,0%	25,0%	50,0%	0,0%	0,0%	25,0%	0,0%	100,0%
Slovenia	0,0%	33,3%	33,3%	16,7%	0,0%	16,7%	0,0%	100,0%
Turkey	0,0%	33,3%	33,3%	0,0%	33,3%	0,0%	0,0%	100,0%
Cyprus	12,5%	12,5%	50,0%	25,0%	0,0%	0,0%	0,0%	100,0%
Malta	20,0%	20,0%	60,0%	0,0%	0,0%	0,0%	0,0%	100,0%
Total general	4,7%	13,0%	57,5%	1,7%	17,6%	4,0%	1,7%	100,0%

Source: own elaboration based on the ERAWATCH European Inventory of Research and Innovation Policy Measures

Annex 3: R&D and innovation policy instrument: 814 instruments by country and main priority (absolute numbers)

1.6 Main policy priority	Austria	Belgium	Bulgaria	Cyprus	Czech Republic	Denmark	Estonia	Finland	France	Germany	Greece	Hungary	Ireland	Italy	Total general
1.1.1 Strategy policy documents			1									1			4
1.1.2 Activities of official advisory and consultative forum															2
1.1.3 Policy Advisory services										1					6
1.2.1 Strategic Research policies (long-term research agendas)	9	1		2	3	11		3	6	5	1	1		3	67
1.2.2 Innovation strategies				1								1			5
1.3.1 Cluster framework policies	2	1	1	3	1		2	1	2	3	1	2		2	37
1.3.2 Horizontal measures in support of financing			2						1	1	4	1			21
1.3.3 Other horizontal policies (ex. society-driven innovation)												1	1		8
2.1.1 Policy measures concerning excellence, relevance and management of research in Universities	2	1			1	1	4	18	2	2		3		2	58
2.1.2 Public Research Organisations	3									2		1	1		21
2.1.3 Research and Technology Organisation (private non-profit)	1														2
2.1.4 Research Infrastructures						1	3			1	1	4			25
2.2.1 Support infrastructure		2				1	1								12
2.2.2 Knowledge Transfer	1	3	2			2			4	2					29
2.2.3 R&D cooperation (PPP)	8	7		1	2	11	1	3	4	11	1	8	7	4	101
2.3.1 Direct support of business R&D (grants and loans)	7	7		1	1		1			2	3	2		2	51
2.3.2 Indirect support to business R&D (tax incentives and guarantees)	1					1			2					1	12
3.1.1 Awareness creation and science education	1		3											2	13
3.1.2 Relation between teaching and research									2				1		4
3.1.3 Stimulation of PhDs			1			2	1	1	1		1	3	1		24
3.2.1 Recruitment of researchers (e.g. fiscal incentives)				1					4			3	3		18
3.2.2 Career development (e.g. long-term contracts for university researchers)	1									2			3		13

3.2.3 Mobility of researchers (e.g. brain-gain, transferability of rights)	1		2			2	1	1	2		1	3	1	1	22
3.3.1 Job training (LLL) of researchers and other personnel involved in innovation				1								1			8
3.3.2 Recruitment of skilled personnel in enterprises				1			2					2	1		14
4.1.1 Support to sectoral innovation in manufacturing	1				4		1	1		1			3	3	23
4.1.2 Support to innovation in services					2			3							8
4.2.1 Support to innovation management and advisory services		2	3		1			1	1			5	1		33
4.2.2 Support to organisational innovation incl. e-business, new forms of work organisations, etc					1			1	1						14
4.2.3 Support to technology transfer between firms								1	1	1		4			12
4.3.1 Support to innovative start-ups incl. gazelles	3	3	2	2	4	2		3	5	1		2	4	2	65
4.3.2 Support to risk capital	5	1				1	1	1	4	2	1	1	1	1	35
5.1.1 Support to the creation of favourable innovation climate (ex. roadshows, awareness campaigns)	2			1				1			1				11
5.1.2 Innovation prizes incl. design prizes				2				2			1				8
5.2.1 Fiscal incentives in support of the diffusion of innovative technologies, products and services				1	1				1			1	1	1	11
5.2.2 Support and guidelines on innovative Green Public Procurement (GPP)															1
5.3.1 Measures to raise awareness and provide general information on IPR										1			1		3
5.3.2 Consultancy and financial incentives to the use of IPR				1				1	1	1		1			12
5.3.3 Support to the innovative use of standards															1
Total general	48	28	17	18	21	35	18	42	44	39	16	51	30	24	814

Source: own elaboration based on the ERAWATCH European Inventory of Research and Innovation Policy Measures

(Continues) R&D and innovation policy instrument: 814 instruments by country and main priority (absolute numbers)

1.6 Main policy priority	Latvia	Lithuania	Luxembourg	Malta	Netherlands	Poland	Portugal	Romania	Slovak Republic	Slovenia	Spain	Sweden	United Kingdom	Total general
1.1.1 Strategy policy documents		1											1	4
1.1.2 Activities of official advisory and consultative forum								1			1			2
1.1.3 Policy Advisory services					1					1			3	6
1.2.1 Strategic Research policies (long-term research agendas)	5	2		2		2		1	2	3	2		3	67
1.2.2 Innovation strategies		1			1								1	5
1.3.1 Cluster framework policies		2	1	2	1	1	2				2	5		37
1.3.2 Horizontal measures in support of financing	1	3	1			1	3	1					2	21
1.3.3 Other horizontal policies (ex. society-driven innovation)		3				2						1		8
2.1.1 Policy measures concerning excellence, relevance and management of research in Universities	4		1		7							5	5	58
2.1.2 Public Research Organisations	4					1		3			6			21
2.1.3 Research and Technology Organisation (private non-profit)		1												2
2.1.4 Research Infrastructures	2	2			2	3			2		3	1		25
2.2.1 Support infrastructure	1					1		1		2	1		2	12
2.2.2 Knowledge Transfer		1			2	2	1	1		1	3	1	3	29
2.2.3 R&D cooperation (PPP)	2	2		2	4	4	5	1		2	3	2	6	101
2.3.1 Direct support of business R&D (grants and loans)	1		2	3	2	4	2		2	1	4	1	3	51
2.3.2 Indirect support to business R&D (tax incentives and guarantees)				1	1	1	2						2	12
3.1.1 Awareness creation and science education		1		2						1			3	13
3.1.2 Relation between teaching and research													1	4
3.1.3 Stimulation of PhDs	1		1	1	1	1	1			1	5	1		24
3.2.1 Recruitment of researchers (e.g. fiscal incentives)					1						6			18
3.2.2 Career development (e.g. long-term contracts for university researchers)	1				4	1					1			13
3.2.3 Mobility of researchers (e.g. brain-gain, transferability of rights)		1			1	1					2	2		22
3.3.1 Job training (LLL) of researchers and other personnel involved in innovation		1				3	2							8
3.3.2 Recruitment of skilled personnel in enterprises	1					1	3			2		1		14
4.1.1 Support to sectoral innovation in manufacturing		1					2				2	3	1	23
4.1.2 Support to innovation in services				2							1			8
4.2.1 Support to innovation management and advisory services		2	1	4	1	2	4		1	1			3	33
4.2.2 Support to organisational innovation incl. e-business, new forms of work organisations, etc		2	1	3			3				1		1	14
4.2.3 Support to technology transfer between firms		2							1	1		1		12
4.3.1 Support to innovative start-ups incl. gazelles	2	1	3	1	2	2	11	1		3	1	3	2	65
4.3.2 Support to risk capital	1			1	3	1	1		2		1	1	5	35
5.1.1 Support to the creation of favourable innovation climate (ex.		2	1				1			1			1	11

roadshows, awareness campaigns)														
5.1.2 Innovation prizes incl. design prizes	1					1							1	8
5.2.1 Fiscal incentives in support of the diffusion of innovative technologies, products and services				1		3							1	11
5.2.2 Support and guidelines on innovative Green Public Procurement (GPP)					1									1
5.3.1 Measures to raise awareness and provide general information on IPR							1							3
5.3.2 Consultancy and financial incentives to the use of IPR	1	1	2			1	1				1			12
5.3.3 Support to the innovative use of standards											1			1
Total general	28	32	14	25	35	39	45	10	10	20	47	28	50	814

Source: own elaboration based on the ERAWATCH European Inventory of Research and Innovation Policy Measures

Annex 4 R&D and innovation policy instrument: 814 instruments by country and main priority (by percentages)

1.6 Main policy priority	Austria	Belgium	Bulgaria	Cyprus	Czech Republic	Denmark	Estonia	Finland	France	Germany	Greece	Hungary	Ireland	Italy	Total general
1.1.1 Strategy policy documents	0,0%	0,0%	5,9%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	2,0%	0,0%	0,0%	4
1.1.2 Activities of official advisory and consultative forum	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	2
1.1.3 Policy Advisory services	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	2,6%	0,0%	0,0%	0,0%	0,0%	6
1.2.1 Strategic Research policies (long-term research agendas)	18,8%	3,6%	0,0%	11,1%	14,3%	31,4%	0,0%	7,1%	13,6%	12,8%	6,3%	2,0%	0,0%	12,5%	67
1.2.2 Innovation strategies	0,0%	0,0%	0,0%	5,6%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	2,0%	0,0%	0,0%	5
1.3.1 Cluster framework policies	4,2%	3,6%	5,9%	16,7%	4,8%	0,0%	11,1%	2,4%	4,5%	7,7%	6,3%	3,9%	0,0%	8,3%	37
1.3.2 Horizontal measures in support of financing	0,0%	0,0%	11,8%	0,0%	0,0%	0,0%	0,0%	0,0%	2,3%	2,6%	25,0%	2,0%	0,0%	0,0%	21
1.3.3 Other horizontal policies (ex. society-driven innovation)	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	2,0%	3,3%	0,0%	8
2.1.1 Policy measures concerning excellence, relevance and management of research in Universities	4,2%	3,6%	0,0%	0,0%	4,8%	2,9%	22,2%	42,9%	4,5%	5,1%	0,0%	5,9%	0,0%	8,3%	58
2.1.2 Public Research Organisations	6,3%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	5,1%	0,0%	2,0%	3,3%	0,0%	21
2.1.3 Research and Technology Organisation (private non-profit)	2,1%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	2
2.1.4 Research Infrastructures	0,0%	0,0%	0,0%	0,0%	0,0%	2,9%	16,7%	0,0%	0,0%	2,6%	6,3%	7,8%	0,0%	0,0%	25
2.2.1 Support infrastructure	0,0%	7,1%	0,0%	0,0%	0,0%	2,9%	5,6%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	12
2.2.2 Knowledge Transfer	2,1%	10,7%	11,8%	0,0%	0,0%	5,7%	0,0%	0,0%	9,1%	5,1%	0,0%	0,0%	0,0%	0,0%	29
2.2.3 R&D cooperation (PPP)	16,7%	25,0%	0,0%	5,6%	9,5%	31,4%	5,6%	7,1%	9,1%	28,2%	6,3%	15,7%	23,3%	16,7%	101
2.3.1 Direct support of business R&D (grants and loans)	14,6%	25,0%	0,0%	5,6%	4,8%	0,0%	5,6%	0,0%	0,0%	5,1%	18,8%	3,9%	0,0%	8,3%	51
2.3.2 Indirect support to business R&D (tax incentives and guarantees)	2,1%	0,0%	0,0%	0,0%	0,0%	2,9%	0,0%	0,0%	4,5%	0,0%	0,0%	0,0%	0,0%	4,2%	12
3.1.1 Awareness creation and science education	2,1%	0,0%	17,6%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	8,3%	13
3.1.2 Relation between teaching and research	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	4,5%	0,0%	0,0%	0,0%	3,3%	0,0%	4
3.1.3 Stimulation of PhDs	0,0%	0,0%	5,9%	0,0%	0,0%	5,7%	5,6%	2,4%	2,3%	0,0%	6,3%	5,9%	3,3%	0,0%	24
3.2.1 Recruitment of researchers (e.g. fiscal incentives)	0,0%	0,0%	0,0%	5,6%	0,0%	0,0%	0,0%	0,0%	9,1%	0,0%	0,0%	5,9%	10,0%	0,0%	18
3.2.2 Career development (e.g. long-term contracts	2,1%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	5,1%	0,0%	0,0%	10,0%	0,0%	13

for university researchers)															
3.2.3 Mobility of researchers (e.g. brain-gain, transferability of rights)	2,1%	0,0%	11,8%	0,0%	0,0%	5,7%	5,6%	2,4%	4,5%	0,0%	6,3%	5,9%	3,3%	4,2%	22
3.3.1 Job training (LLL) of researchers and other personnel involved in innovation	0,0%	0,0%	0,0%	5,6%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	2,0%	0,0%	0,0%	8
3.3.2 Recruitment of skilled personnel in enterprises	0,0%	0,0%	0,0%	5,6%	0,0%	0,0%	11,1%	0,0%	0,0%	0,0%	0,0%	3,9%	3,3%	0,0%	14
4.1.1 Support to sectoral innovation in manufacturing	2,1%	0,0%	0,0%	0,0%	19,0%	0,0%	5,6%	2,4%	0,0%	2,6%	0,0%	0,0%	10,0%	12,5%	23
4.1.2 Support to innovation in services	0,0%	0,0%	0,0%	0,0%	9,5%	0,0%	0,0%	7,1%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	8
4.2.1 Support to innovation management and advisory services	0,0%	7,1%	17,6%	0,0%	4,8%	0,0%	0,0%	2,4%	2,3%	0,0%	0,0%	9,8%	3,3%	0,0%	33
4.2.2 Support to organisational innovation incl. e-business, new forms of work organisations, etc	0,0%	0,0%	0,0%	0,0%	4,8%	0,0%	0,0%	2,4%	2,3%	0,0%	0,0%	0,0%	0,0%	0,0%	14
4.2.3 Support to technology transfer between firms	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	2,4%	2,3%	2,6%	0,0%	7,8%	0,0%	0,0%	12
4.3.1 Support to innovative start-ups incl. gazelles	6,3%	10,7%	11,8%	11,1%	19,0%	5,7%	0,0%	7,1%	11,4%	2,6%	0,0%	3,9%	13,3%	8,3%	65
4.3.2 Support to risk capital	10,4%	3,6%	0,0%	0,0%	0,0%	2,9%	5,6%	2,4%	9,1%	5,1%	6,3%	2,0%	3,3%	4,2%	35
5.1.1 Support to the creation of favourable innovation climate (ex. roadshows, awareness campaigns)	4,2%	0,0%	0,0%	5,6%	0,0%	0,0%	0,0%	2,4%	0,0%	0,0%	6,3%	0,0%	0,0%	0,0%	11
5.1.2 Innovation prizes incl. design prizes	0,0%	0,0%	0,0%	11,1%	0,0%	0,0%	0,0%	4,8%	0,0%	0,0%	6,3%	0,0%	0,0%	0,0%	8
5.2.1 Fiscal incentives in support of the diffusion of innovative technologies, products and services	0,0%	0,0%	0,0%	5,6%	4,8%	0,0%	0,0%	0,0%	2,3%	0,0%	0,0%	2,0%	3,3%	4,2%	11
5.2.2 Support and guidelines on innovative Green Public Procurement (GPP)	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	1
5.3.1 Measures to raise awareness and provide general information on IPR	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	2,6%	0,0%	0,0%	3,3%	0,0%	3
5.3.2 Consultancy and financial incentives to the use of IPR	0,0%	0,0%	0,0%	5,6%	0,0%	0,0%	0,0%	2,4%	2,3%	2,6%	0,0%	2,0%	0,0%	0,0%	12
5.3.3 Support to the innovative use of standards	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	1
Total general	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	814

Source: own elaboration based on the ERAWATCH European Inventory of Research and Innovation Policy Measures

(Continues) R&D and innovation policy instrument: 814 instruments by country and main priority (by percentages)

1.6 Main policy priority	Latvia	Lithuania	Luxembourg	Malta	Netherlands	Poland	Portugal	Romania	Slovak Republic	Slovenia	Spain	Sweden	United Kingdom	Total general
1.1.1 Strategy policy documents	0,0%	3,1%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	2,0%	0,5%
1.1.2 Activities of official advisory and consultative forum	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	10,0%	0,0%	0,0%	2,1%	0,0%	0,0%	0,2%
1.1.3 Policy Advisory services	0,0%	0,0%	0,0%	0,0%	2,9%	0,0%	0,0%	0,0%	0,0%	5,0%	0,0%	0,0%	6,0%	0,7%
1.2.1 Strategic Research policies (long-term research agendas)	17,9%	6,3%	0,0%	8,0%	0,0%	5,1%	0,0%	10,0%	20,0%	15,0%	4,3%	0,0%	6,0%	8,2%
1.2.2 Innovation strategies	0,0%	3,1%	0,0%	0,0%	2,9%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	2,0%	0,6%
1.3.1 Cluster framework policies	0,0%	6,3%	7,1%	8,0%	2,9%	2,6%	4,4%	0,0%	0,0%	0,0%	4,3%	17,9%	0,0%	4,5%
1.3.2 Horizontal measures in support of financing	3,6%	9,4%	7,1%	0,0%	0,0%	2,6%	6,7%	10,0%	0,0%	0,0%	0,0%	0,0%	4,0%	2,6%
1.3.3 Other horizontal policies (ex. society-driven innovation)	0,0%	9,4%	0,0%	0,0%	0,0%	5,1%	0,0%	0,0%	0,0%	0,0%	0,0%	3,6%	0,0%	1,0%
2.1.1 Policy measures concerning excellence, relevance and management of research in Universities	14,3%	0,0%	7,1%	0,0%	20,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	17,9%	10,0%	7,1%
2.1.2 Public Research Organisations	14,3%	0,0%	0,0%	0,0%	0,0%	2,6%	0,0%	30,0%	0,0%	0,0%	12,8%	0,0%	0,0%	2,6%
2.1.3 Research and Technology Organisation (private non-profit)	0,0%	3,1%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,2%
2.1.4 Research Infrastructures	7,1%	6,3%	0,0%	0,0%	5,7%	7,7%	0,0%	0,0%	20,0%	0,0%	6,4%	3,6%	0,0%	3,1%
2.2.1 Support infrastructure	3,6%	0,0%	0,0%	0,0%	0,0%	2,6%	0,0%	10,0%	0,0%	10,0%	2,1%	0,0%	4,0%	1,5%
2.2.2 Knowledge Transfer	0,0%	3,1%	0,0%	0,0%	5,7%	5,1%	2,2%	10,0%	0,0%	5,0%	6,4%	3,6%	6,0%	3,6%
2.2.3 R&D cooperation (PPP)	7,1%	6,3%	0,0%	8,0%	11,4%	10,3%	11,1%	10,0%	0,0%	10,0%	6,4%	7,1%	12,0%	12,4%
2.3.1 Direct support of business R&D (grants and loans)	3,6%	0,0%	14,3%	12,0%	5,7%	10,3%	4,4%	0,0%	20,0%	5,0%	8,5%	3,6%	6,0%	6,3%
2.3.2 Indirect support to business R&D (tax incentives and guarantees)	0,0%	0,0%	0,0%	4,0%	2,9%	2,6%	4,4%	0,0%	0,0%	0,0%	0,0%	0,0%	4,0%	1,5%
3.1.1 Awareness creation and science education	0,0%	3,1%	0,0%	8,0%	0,0%	0,0%	0,0%	0,0%	0,0%	5,0%	0,0%	0,0%	6,0%	1,6%
3.1.2 Relation between teaching and research	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	2,0%	0,5%
3.1.3 Stimulation of PhDs	3,6%	0,0%	7,1%	4,0%	2,9%	2,6%	2,2%	0,0%	0,0%	5,0%	10,6%	3,6%	0,0%	2,9%
3.2.1 Recruitment of researchers (e.g. fiscal incentives)	0,0%	0,0%	0,0%	0,0%	2,9%	0,0%	0,0%	0,0%	0,0%	0,0%	12,8%	0,0%	0,0%	2,2%
3.2.2 Career development (e.g. long-term contracts for university researchers)	3,6%	0,0%	0,0%	0,0%	11,4%	2,6%	0,0%	0,0%	0,0%	0,0%	2,1%	0,0%	0,0%	1,6%
3.2.3 Mobility of researchers (e.g. brain-gain, transferability of rights)	0,0%	3,1%	0,0%	0,0%	2,9%	2,6%	0,0%	0,0%	0,0%	0,0%	4,3%	7,1%	0,0%	2,7%
3.3.1 Job training (LLL) of researchers and other personnel involved in innovation	0,0%	3,1%	0,0%	0,0%	0,0%	7,7%	4,4%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	1,0%

3.3.2 Recruitment of skilled personnel in enterprises	3,6%	0,0%	0,0%	0,0%	0,0%	2,6%	6,7%	0,0%	0,0%	10,0%	0,0%	3,6%	0,0%	1,7%
4.1.1 Support to sectoral innovation in manufacturing	0,0%	3,1%	0,0%	0,0%	0,0%	0,0%	4,4%	0,0%	0,0%	0,0%	4,3%	10,7%	2,0%	2,8%
4.1.2 Support to innovation in services	0,0%	0,0%	0,0%	8,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	2,1%	0,0%	0,0%	1,0%
4.2.1 Support to innovation management and advisory services	0,0%	6,3%	7,1%	16,0%	2,9%	5,1%	8,9%	0,0%	10,0%	5,0%	0,0%	0,0%	6,0%	4,1%
4.2.2 Support to organisational innovation incl. e-business, new forms of work organisations, etc	0,0%	6,3%	7,1%	12,0%	0,0%	0,0%	6,7%	0,0%	0,0%	0,0%	2,1%	0,0%	2,0%	1,7%
4.2.3 Support to technology transfer between firms	0,0%	6,3%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	10,0%	5,0%	0,0%	3,6%	0,0%	1,5%
4.3.1 Support to innovative start-ups incl. gazelles	7,1%	3,1%	21,4%	4,0%	5,7%	5,1%	24,4%	10,0%	0,0%	15,0%	2,1%	10,7%	4,0%	8,0%
4.3.2 Support to risk capital	3,6%	0,0%	0,0%	4,0%	8,6%	2,6%	2,2%	0,0%	20,0%	0,0%	2,1%	3,6%	10,0%	4,3%
5.1.1 Support to the creation of favourable innovation climate (ex. roadshows, awareness campaigns)	0,0%	6,3%	7,1%	0,0%	0,0%	0,0%	2,2%	0,0%	0,0%	5,0%	0,0%	0,0%	2,0%	1,4%
5.1.2 Innovation prizes incl. design prizes	3,6%	0,0%	0,0%	0,0%	0,0%	2,6%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	2,0%	1,0%
5.2.1 Fiscal incentives in support of the diffusion of innovative technologies, products and services	0,0%	0,0%	0,0%	4,0%	0,0%	7,7%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	2,0%	1,4%
5.2.2 Support and guidelines on innovative Green Public Procurement (GPP)	0,0%	0,0%	0,0%	0,0%	2,9%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,1%
5.3.1 Measures to raise awareness and provide general information on IPR	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	2,2%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,4%
5.3.2 Consultancy and financial incentives to the use of IPR	3,6%	3,1%	14,3%	0,0%	0,0%	2,6%	2,2%	0,0%	0,0%	0,0%	2,1%	0,0%	0,0%	1,5%
5.3.3 Support to the innovative use of standards	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	2,1%	0,0%	0,0%	0,1%
Total general	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

Source: own elaboration based on the ERAWATCH European Inventory of Research and Innovation Policy Measures

ANNEXES SECTION 4

Annex 5 Evaluation of R&D and innovation policy instrument: 814 instruments by country and by type of evaluations

	Total general	Not evaluated	Ex ante (1)	On going or mid term (2)	Ex post (3)	3 and 2	2 and 1	3 and 1	1, 2 and 3	Total general	At least % Ex ante	At least % Following up	At least % Ex post	Not evaluated
Austria	48	31,3%	4,2%	47,9%	0,0%	6,3%	6,3%	0,0%	4,2%	100,0%	14,6%	64,6%	10,4%	31,3%
Belgium	28	57,1%	3,6%	39,3%	0,0%	0,0%	0,0%	0,0%	0,0%	100,0%	3,6%	39,3%	0,0%	57,1%
Bulgaria	17	23,5%	5,9%	17,6%	0,0%	11,8%	0,0%	5,9%	35,3%	100,0%	47,1%	64,7%	52,9%	23,5%
Cyprus	18	100,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	100,0%	0,0%	0,0%	0,0%	100,0%
Czech Republic	21	95,2%	0,0%	4,8%	0,0%	0,0%	0,0%	0,0%	0,0%	100,0%	0,0%	4,8%	0,0%	95,2%
Denmark	35	31,4%	0,0%	8,6%	0,0%	0,0%	2,9%	0,0%	57,1%	100,0%	60,0%	68,6%	57,1%	31,4%
Estonia	18	61,1%	0,0%	0,0%	0,0%	11,1%	0,0%	5,6%	22,2%	100,0%	27,8%	33,3%	38,9%	61,1%
Finland	42	38,1%	2,4%	11,9%	4,8%	7,1%	0,0%	0,0%	35,7%	100,0%	38,1%	54,8%	47,6%	38,1%
France	44	63,6%	4,5%	20,5%	2,3%	6,8%	0,0%	2,3%	0,0%	100,0%	6,8%	27,3%	11,4%	63,6%
Germany	39	28,2%	2,6%	7,7%	17,9%	7,7%	2,6%	0,0%	33,3%	100,0%	38,5%	51,3%	59,0%	28,2%
Greece	16	56,3%	25,0%	0,0%	0,0%	0,0%	12,5%	0,0%	6,3%	100,0%	43,8%	18,8%	6,3%	56,3%
Hungary	51	76,5%	17,6%	3,9%	2,0%	0,0%	0,0%	0,0%	0,0%	100,0%	17,6%	3,9%	2,0%	76,5%
Ireland	30	76,7%	3,3%	6,7%	6,7%	3,3%	0,0%	0,0%	3,3%	100,0%	6,7%	13,3%	13,3%	76,7%
Italy	24	62,5%	4,2%	4,2%	12,5%	0,0%	0,0%	0,0%	16,7%	100,0%	20,8%	20,8%	29,2%	62,5%
Latvia	28	39,3%	17,9%	3,6%	0,0%	0,0%	3,6%	0,0%	35,7%	100,0%	57,1%	42,9%	35,7%	39,3%
Lithuania	32	12,5%	75,0%	9,4%	0,0%	0,0%	3,1%	0,0%	0,0%	100,0%	78,1%	12,5%	0,0%	12,5%
Luxembourg	14	50,0%	0,0%	21,4%	0,0%	14,3%	0,0%	0,0%	14,3%	100,0%	14,3%	50,0%	28,6%	50,0%
Malta	25	92,0%	4,0%	0,0%	0,0%	0,0%	0,0%	0,0%	4,0%	100,0%	8,0%	4,0%	4,0%	92,0%
Netherlands	35	45,7%	0,0%	40,0%	2,9%	5,7%	0,0%	0,0%	5,7%	100,0%	5,7%	51,4%	14,3%	45,7%
Poland	39	66,7%	30,8%	0,0%	0,0%	0,0%	0,0%	0,0%	2,6%	100,0%	33,3%	2,6%	2,6%	66,7%
Portugal	45	42,2%	31,1%	15,6%	0,0%	0,0%	11,1%	0,0%	0,0%	100,0%	42,2%	26,7%	0,0%	42,2%
Romania	10	80,0%	0,0%	0,0%	0,0%	0,0%	10,0%	10,0%	0,0%	100,0%	20,0%	10,0%	10,0%	80,0%
Slovak Republic	10	60,0%	0,0%	10,0%	0,0%	0,0%	0,0%	0,0%	30,0%	100,0%	30,0%	40,0%	30,0%	60,0%
Slovenia	20	50,0%	10,0%	15,0%	0,0%	20,0%	5,0%	0,0%	0,0%	100,0%	15,0%	40,0%	20,0%	50,0%
Spain	47	80,9%	2,1%	0,0%	0,0%	4,3%	2,1%	0,0%	10,6%	100,0%	14,9%	17,0%	14,9%	80,9%
Sweden	28	57,1%	17,9%	7,1%	0,0%	3,6%	0,0%	0,0%	14,3%	100,0%	32,1%	25,0%	17,9%	57,1%
United Kingdom	50	56,0%	0,0%	24,0%	4,0%	2,0%	0,0%	8,0%	6,0%	100,0%	14,0%	32,0%	20,0%	56,0%
Total general	814	55,0%	10,7%	13,4%	2,3%	3,6%	2,1%	1,0%	11,9%	100,0%	25,7%	31,0%	18,8%	55,0%

Source: own elaboration based on the ERAWATCH European Inventory of Research and Innovation Policy Measures

Annex 6 Evaluation of R&D and innovation policy instrument: 814 instruments by type of main priority and type of evaluation

1.6 Main policy priority	Total general	Not evaluated	Ex ante (1)	On going or mid term (2)	Ex post (3)	3 and 2	2 and 1	3 and 1	1, 2 and 3	Total general	At least % Ex ante	At least % Following up	At least % Ex post	Not evaluated
1.1.1 Strategy policy documents (official documents, policy consultation papers, green or white papers, Operational Programmes of Structural Funds)	4	75,0%	0,0%	25,0%	0,0%	0,0%	0,0%	0,0%	0,0%	100,0%	0,0%	25,0%	0,0%	75,0%
1.1.2 Activities of official advisory and consultative forum	2	100,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	100,0%	0,0%	0,0%	0,0%	100,0%
1.1.3 Policy Advisory services (technology foresight, scoreboard type activities, cluster mapping, sectoral studies of innovation)	6	33,3%	16,7%	16,7%	16,7%	0,0%	0,0%	16,7%	0,0%	100,0%	33,3%	16,7%	33,3%	33,3%
1.2.1 Strategic Research policies (long-term research agendas)	67	29,9%	6,0%	17,9%	3,0%	4,5%	1,5%	1,5%	35,8%	100,0%	44,8%	59,7%	44,8%	29,9%
1.2.2 Innovation strategies	5	80,0%	20,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	100,0%	20,0%	0,0%	0,0%	80,0%
1.3.1 Cluster framework policies	37	54,1%	18,9%	10,8%	2,7%	0,0%	0,0%	8,1%	5,4%	100,0%	32,4%	16,2%	16,2%	54,1%
1.3.2 Horizontal measures in support of financing	21	38,1%	33,3%	0,0%	4,8%	19,0%	0,0%	4,8%	0,0%	100,0%	38,1%	19,0%	28,6%	38,1%
1.3.3 Other horizontal policies (ex. society-driven innovation)	8	50,0%	37,5%	0,0%	12,5%	0,0%	0,0%	0,0%	0,0%	100,0%	37,5%	0,0%	12,5%	50,0%
2.1.1 Policy measures concerning excellence, relevance and management of research in Universities	58	39,7%	1,7%	10,3%	5,2%	0,0%	0,0%	5,2%	37,9%	100,0%	44,8%	48,3%	48,3%	39,7%
2.1.2 Public Research Organisations	21	57,1%	0,0%	0,0%	4,8%	4,8%	4,8%	0,0%	28,6%	100,0%	33,3%	38,1%	38,1%	57,1%
2.1.3 Research and Technology Organisation (private non-profit)	2	0,0%	0,0%	100,0%	0,0%	0,0%	0,0%	0,0%	0,0%	100,0%	0,0%	100,0%	0,0%	0,0%
2.1.4 Research Infrastructures	25	68,0%	24,0%	0,0%	0,0%	4,0%	4,0%	0,0%	0,0%	100,0%	28,0%	8,0%	4,0%	68,0%
2.2.1 Support infrastructure (transfer offices, training of support staff)	12	50,0%	0,0%	25,0%	0,0%	16,7%	0,0%	0,0%	8,3%	100,0%	8,3%	50,0%	25,0%	50,0%
2.2.2 Knowledge Transfer (contract research, licences, research and IPR issues in public/academic/non-profit institutes)	29	51,7%	10,3%	20,7%	0,0%	3,4%	3,4%	3,4%	6,9%	100,0%	24,1%	34,5%	13,8%	51,7%
2.2.3 R&D cooperation (joint projects, PPP with research institutes)	101	52,5%	10,9%	11,9%	4,0%	1,0%	1,0%	5,9%	12,9%	100,0%	30,7%	26,7%	23,8%	52,5%
2.3.1 Direct support of business R&D (grants and loans)	51	51,0%	13,7%	17,6%	0,0%	0,0%	2,0%	3,9%	11,8%	100,0%	31,4%	31,4%	15,7%	51,0%
2.3.2 Indirect support to business R&D (tax incentives and guarantees)	12	66,7%	0,0%	8,3%	0,0%	0,0%	0,0%	16,7%	8,3%	100,0%	25,0%	16,7%	25,0%	66,7%
3.1.1 Awareness creation and science education	13	38,5%	15,4%	23,1%	0,0%	0,0%	0,0%	7,7%	15,4%	100,0%	38,5%	38,5%	23,1%	38,5%

3.1.2 Relation between teaching and research	4	100,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	100,0%	0,0%	0,0%	0,0%	100,0%
3.1.3 Stimulation of PhDs	24	66,7%	4,2%	8,3%	0,0%	0,0%	0,0%	4,2%	16,7%	100,0%	25,0%	25,0%	20,8%	66,7%
3.2.1 Recruitment of researchers (e.g. fiscal incentives)	18	83,3%	0,0%	0,0%	0,0%	0,0%	0,0%	5,6%	11,1%	100,0%	16,7%	11,1%	16,7%	83,3%
3.2.2 Career development (e.g. long-term contracts for university researchers)	13	53,8%	0,0%	23,1%	0,0%	0,0%	0,0%	0,0%	23,1%	100,0%	23,1%	46,2%	23,1%	53,8%
3.2.3 Mobility of researchers (e.g. brain-gain, transferability of rights)	22	59,1%	9,1%	4,5%	0,0%	0,0%	0,0%	0,0%	27,3%	100,0%	36,4%	31,8%	27,3%	59,1%
3.3.1 Job training (LLL) of researchers and other personnel involved in innovation	8	62,5%	12,5%	0,0%	0,0%	25,0%	0,0%	0,0%	0,0%	100,0%	12,5%	25,0%	25,0%	62,5%
3.3.2 Recruitment of skilled personnel in enterprises	14	71,4%	21,4%	7,1%	0,0%	0,0%	0,0%	0,0%	0,0%	100,0%	21,4%	7,1%	0,0%	71,4%
4.1.1 Support to sectoral innovation in manufacturing	23	82,6%	8,7%	4,3%	0,0%	0,0%	0,0%	0,0%	4,3%	100,0%	13,0%	8,7%	4,3%	82,6%
4.1.2 Support to innovation in services	8	100,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	100,0%	0,0%	0,0%	0,0%	100,0%
4.2.1 Support to innovation management and advisory services	33	57,6%	15,2%	24,2%	0,0%	0,0%	3,0%	0,0%	0,0%	100,0%	18,2%	27,3%	0,0%	57,6%
4.2.2 Support to organisational innovation incl. e-business, new forms of work organisations, etc	14	57,1%	14,3%	21,4%	0,0%	0,0%	0,0%	7,1%	0,0%	100,0%	21,4%	21,4%	7,1%	57,1%
4.2.3 Support to technology transfer between firms	12	16,7%	58,3%	16,7%	0,0%	0,0%	8,3%	0,0%	0,0%	100,0%	66,7%	25,0%	0,0%	16,7%
4.3.1 Support to innovative start-ups incl. gazelles	65	63,1%	7,7%	20,0%	1,5%	0,0%	0,0%	6,2%	1,5%	100,0%	15,4%	21,5%	9,2%	63,1%
4.3.2 Support to risk capital	35	57,1%	5,7%	22,9%	8,6%	2,9%	0,0%	0,0%	2,9%	100,0%	8,6%	28,6%	14,3%	57,1%
5.1.1 Support to the creation of favourable innovation climate (ex. roadshows, awareness campaigns)	11	45,5%	27,3%	18,2%	0,0%	0,0%	0,0%	9,1%	0,0%	100,0%	36,4%	18,2%	9,1%	45,5%
5.1.2 Innovation prizes incl. design prizes	8	100,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	100,0%	0,0%	0,0%	0,0%	100,0%
5.2.1 Fiscal incentives in support of the diffusion of innovative technologies, products and services	11	81,8%	0,0%	9,1%	9,1%	0,0%	0,0%	0,0%	0,0%	100,0%	0,0%	9,1%	9,1%	81,8%
5.2.2 Support and guidelines on innovative Green Public Procurement (GPP)	1	0,0%	0,0%	100,0%	0,0%	0,0%	0,0%	0,0%	0,0%	100,0%	0,0%	100,0%	0,0%	0,0%
5.3.1 Measures to raise awareness and provide general information on IPR	3	100,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	100,0%	0,0%	0,0%	0,0%	100,0%
5.3.2 Consultancy and financial incentives to the use of IPR	12	58,3%	8,3%	25,0%	0,0%	8,3%	0,0%	0,0%	0,0%	100,0%	8,3%	33,3%	8,3%	58,3%
5.3.3 Support to the innovative use of standards	1	100,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	100,0%	0,0%	0,0%	0,0%	100,0%
Total	814	55,0%	10,7%	13,4%	2,3%	2,1%	1,0%	3,6%	11,9%	100,0%	27,1%	28,4%	19,9%	55,0%

Source: own elaboration based on the ERAWATCH European Inventory of Research and Innovation Policy Measures

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